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CONTENTS.

Original Communications.

The Overtreatment of Syphilis. By George Henry Fox, A.M., M.D..... 505
The Treatment of Syphilis. By M. B. Hartzell, M.D..... 509
The Treatment of Syphilis. By W. A. Hardaway, M.D..... 511
The Treatment of Syphilis. By Edward Martin, M.D..... 513
The Treatment of Syphilis. By Granville MacGowan, M.D..... 516
Diarrhea in Infancy and Early Life. By Irwin H. Hance, M.D..... 525

Leading Articles.

Acid Intoxication under Anesthesia..... 528
The Overeffects of the Bromides..... 529
Massage of the Heart in Chloroform Syncope..... 530
Treatment of Tuberculous Peritonitis..... 531
Goitre Extirpation..... 532

Reports on Therapeutic Progress.

The Treatment of Tuberculous Pleurisy..... 527
The Pharmacological Action of Digitalis, Strophanthus, and Squill... 533
Points of Interest in Major Anesthesia..... 534
Hematemesis..... 535
Diet in Gout, Rheumatism, and Allied Conditions..... 535
Scopolamine-Morphine Anesthesia. 538
The Value of Alcohol in Carbolic Acid Poisoning..... 538
Poison Ivy..... 539
A Death under Chloride of Ethyl in a Dentist's Chair..... 540
Spastic Constipation..... 541
Depletion in Heart Disease..... 542
In Praise of Rum and Milk..... 543
The Bearing of Metabolism Experiments upon the Treatment of Some Diseases..... 544
An Experience with Cascara..... 546
The Non-operative Methods of Treating Chronic Discharge from the Middle Ear..... 547
Twenty-two Fatalities which Have Occurred under Ethyl Chloride... 549
Acute Diseases of the Nasal Sinuses. 550
Chronic Colitis in Children..... 551
Treatment of Puerperal Septic Diseases..... 552
Hepatic Insufficiency..... 553
Uric Acid Solvents..... 554
Lumbago..... 555
The Practical Management of Typhoid Fever..... 556
A Note on the Treatment of Cholera by Saline Injections..... 558
The Rôle of Pure Cow's Milk in Infant Feeding..... 559
The Treatment of Pruritus Ani..... 560
A Further Contribution to the Study of Untoward Serum Reactions..... 561
The Therapeutics of Acute Nephritis..... 562
The Plastic Renewal of the Edge of the Nasal Septum..... 563
The Use of Clamping Forceps in Suturing Wounds..... 563
Injuries of the Carpus..... 563
Tonsillar Abscess—Treatment by Tonsillotomy..... 563
Congestive Hyperemia in Endometritis..... 564
Tuberculous Arthritis—Treatment by Passive Motion and Massage... 564
Congenital Intestinal Atresia—Diagnosis from Meconium..... 564
Retroversion—Technique of Shortening Round Ligaments..... 564
Absence of the Vagina—New Plastic Operation..... 565
Pyelonephritis—Difficulty of Diagnosis..... 565
Suture of Heart—Infection from Pleura..... 565
Gastroenterostomy—New Technique..... 566
Diseases of the Nose and Ear—Treatment by Aspiration..... 566
Carcinoma—Treatment by Antitoxic Sera..... 566
On the Sensibility of Different Organs and Tissues..... 566
Peritonitis Due to Pneumococcus—Acute Form..... 567
Chronic Catarrh of the Lacrimal Sac..... 567
Gall-stones—A New Idea of Their Causation and Treatment..... 567
Bone Changes in Scoliosis..... 568
Fracture of Greater Tuberosity of the Humerus..... 568
Primary Sarcoma of the Knee-joint. 568
Eclampsia—Renal Decapsulation... 569
The Effects of X-rays on Growth.... 569
Fractures of the Os Calcis..... 569
Tuberculosis of Bursæ and Tendon Sheaths..... 569
Vincent's Angina..... 569
The Diagnosis and Treatment of Typhoid Perforation..... 570
The Treatment of Mediastinal Carcinoma with the Roentgen Rays.. 571
Tendon and Muscle Transference... 571
Interscapulothoracic Amputation for Sarcoma of the Scapula..... 572
The Treatment of Puerperal Infection..... 573

Correspondence.

London Letter..... 573

Notes and Queries.

"Ups and Downs" of a Health-seeker After Leaving the Adirondacks..... 575

Original Communications.

THE OVERTREATMENT OF SYPHILIS.

BY GEORGE HENRY FOX, A.M., M.D.,
Professor of Dermatology, College of Physicians and Surgeons, New York.

One of the commonest therapeutic errors of the present day is to be found in the overtreatment of syphilis. Led astray by a notion, as prevalent as it is erroneous, that every patient contracting syphilis and not subjected to vigorous medication is doomed to suffer from a host of definite and indefinite ills, many physicians rely solely upon our well-known and valuable antisyphilitic remedies for a cure and push these to the extent of the patient's tolerance. And what is the natural result of such a course? In many a case of ordinary syphilis the treatment, so far as the patient is concerned, is worse than the disease. With careful attention paid to his general hygienic condition the average patient with syphilis suffers little from the various symptoms of the disease. Rarely do they interfere seriously with either his business or his pleasure. But when his mind is allowed to dwell on possible dangers, which are not at all probable, until he becomes depressed and irritable, when the doses are increased until his gastrointestinal functions are seriously impaired, or when time and comfort and cleanliness are sacrified to unnecessary baths, inunctions, and injections, then indeed does the case assume a serious aspect. But the suffering which the patient now endures is due far more to the

injudicious treatment than to the virulency of the disease.

The popular idea of syphilis is based largely on tradition and ignorance of its true nature. The dread of its terrors is fostered by the publications of charlatans, and is usually instilled into the mind of every young man who begins the study of medicine. During his college course he receives more or less instruction as to the nature and treatment of the disease—usually less as to its nature and more as to the necessity of treating it vigorously. He is rarely taught that syphilis may run a benignant course, and like many other diseases may occasionally get well without treatment. He usually graduates with a firm belief that the cure of the disease depends entirely upon the administration of drugs, and rarely lives long enough to discover its falsity.

It is unfortunate that the young physician so often leaves his alma mater imbued with the idea that the shortest path from disease to health invariably leads through the apothecary shop. That he knows so little of the natural course of diseases, fails to appreciate the curative power of nature under favorable conditions, and puts his trust so implicitly in the effect of pharmacopœial remedies, is a misfortune for which his teachers are more or less to blame. A few years of practice enable most physicians to arrive at the conclusion that the acute exanthemata will get well, as a rule, under careful nursing and without any vigorous medication. But many years of practice usually fail to teach them that a chronic exanthematous disease like syphilis may also run its course and under favorable circumstances terminate in a complete cure even if no medicine be administered. The traditional notion of the horrible nature of syphilis, combined with the doctrine so often instilled into their minds in the medical college that the disease must be treated vigorously, leads them to underestimate the curative power of nature and to rely wholly upon the effect of large, unremitting, and long-continued dosing. In fact, it is this unfortunate teaching that syphilis must be combated vigorously that leads so many to forget the hygienic requirements of the patient, to ignore the fact that the best therapeutic results are usually obtained from a combination of these with moderate medication, and to subject the patient to the discomfort, not to mention the possible injurious effect, of excessive and unnecessary measures.

It would be a most instructive lesson to all students of medicine and to physicians who undertake the cure of syphilis to see a few cases treated by the faith cure or some other form of expectancy, and to note the results during the course of the disease and after many years. It might open their eyes to the recognition of a most important fact, viz., that it is the *vis medicatrix naturæ* which is the most important element in the cure of syphilis as it is of so many other diseases. It might convince them that syphilis is not always the terrible and voracious demon which exists in the imagination of the laity and in the belief of so many of the medical profession; that in a patient who inherits a good constitution and leads a proper life it usually runs a mild course; and that in very many cases it may run its course to complete recovery without the administration of a single grain of mercury. It might lead them not to think less of the inestimable remedies commonly employed in treating syphilis, but to think more of the hygienic condition of the patient which must exist in order to have these remedies produce their brilliant results.

In the treatment of syphilis the remarkable variation in the severity of the disease should always be taken into consideration. While some patients manifest certain symptoms which may persist or relapse during a succession of years, others show but few characteristic symptoms, and these of a fugitive nature. The treatment of a severe case would naturally demand more time and more medication than the treatment of a mild one, and no fixed rule can be laid down which will apply to all. No one claims that every case of measles or scarlatina should be treated for one week, four and a half weeks, or seven weeks; the duration of treatment is always based upon the exigencies of the individual case. And so it should be with syphilis.

The rule laid down by some teachers, and accepted by many physicians, that every case of syphilis should be treated for two, three and a half, or four years is illogical and often harmful. Such a routine treatment of every case, whether mild or severe, involves at least a waste

of good medicine even if it does not injure the patient. But there are many who will claim that if these seemingly mild cases are not vigorously treated for a certain number of years there is great danger of severe tertiary symptoms occurring later in life and affecting the arteries, the brain, and other internal organs. It is much easier to claim this than to prove it. It is a difficult matter to get accurate statistics of a large number of cases which would show the dependence of late syphilitic lesions upon an insufficient treatment of the disease in its early stage. It is easy, on the other hand, to theorize and to make predictions as to direful results which will happen if certain vigorous methods are not pursued. But do they happen? The writer believes that many physicians who have treated syphilis for more than a quarter of a century, and can base their opinion upon observations rather than upon theories or probabilities, will agree with him that the facts do not always tally with the commonly accepted doctrine, that many syphilitics who have never taken a grain of mercury die of old age, while, on the other hand, the serious syphilitic affections occurring twenty years or more after infection not infrequently are to be found in those who were under treatment for several years at the outset of the disease. They do not occur as a result of the vigorous and prolonged treatment, but they certainly occur very frequently in spite of it.

There are some cases of syphilis commonly spoken of as "obstinate" which often demand a diminution or temporary discontinuance of mercurial treatment rather than an increase. In severe cases, whether observed in the early or late stage of the disease, the ordinary doses of mercury or of combined mercury and potassium iodide not infrequently fail to produce any beneficial result. In such cases the natural tendency of many physicians is to "push the remedy." This is especially true of those who have been taught the erroneous doctrine that syphilis must always be combated vigorously.

Occasionally a case will yield to large doses when uninfluenced by moderate medication, but for every one such case there can be found a score of cases of so-called obstinate syphilis in which the increase of the dosage is followed by no benefit whatever, but, on the other hand, by an injurious effect upon the digestion and a marked impairment of the patient's general condition. And still the dosage is increased! And still the patient fails to respond! As nearly every reader is doubtless aware, it is not at all uncommon to find in some dark corner of a ward in a city hospital one of these cases of "obstinate" syphilis to which enormous doses of potassium iodide have been given, each attending physician vying with his predecessor in an attempt to break the record of drachms or ounces administered daily. How distressing to the patient! How discouraging to the medical student! And yet how instructive the case might be to him if he were to realize the fact that if one-half of the money expended by the city for potassium iodide and other expensive drugs were invested in pure milk, fresh eggs, and possibly a shelter tent beneath which the patient could breathe daily some purer out-of-door air, there would be infinitely more likelihood of a speedy cure.

In private practice these so-called obstinate cases are also encountered, and here again the more the remedies are "pushed" the worse may become the condition of the patient. New and strange salts of mercury are tried; inunctions are alternated with intramuscular injections and mercurial baths prescribed as a last resort. Now what would be the result if the physician were to break away from the path of routine, stop this generally approved style of antisyphilitic medication, and for a few weeks treat the patient instead of his disease? If he were to forget that he had made a diagnosis of syphilis and would only imagine that the patient were booked to enter some athletic contest in a few weeks, and that it devolved upon him by means of exercise, diet, and bathing (the tripod of the trainer) to put his patient in the best possible physical condition, it is more than likely that the syphilis would be benefited by such a regimen. At any rate, the tone of the patient would be so improved that moderate doses of antisyphilitic remedies which before had produced no effect would now act like a charm in controlling the symptoms of the disease.

A mistake is often made in thinking that the results of syphilis are quite as amenable to antisyphilitic remedies as is

the disease itself. While mercury and iodide of potassium will often heal a specific ulcer with surprising rapidity, their prolonged administration will have no effect upon the scar which is left. Of course no one claims that it will! But when syphilis has destroyed the nose and long since ceased to exist, many physicians will at once make a diagnosis of specific disease and begin an energetic course of antisyphilitic remedies. There being no longer any syphilis present the medication will naturally prove valueless and possibly injurious. Young men and women with faces showing the ravages of hereditary disease in the destruction of nose and perhaps eyes often go from one hospital or dispensary to another. The diagnosis of syphilis is always quickly made, but no distinction between past and present syphilis is thought of. Failing to improve under the administration of the routine treatment, the patient goes to another dispensary, where the same diagnosis is made and the same unnecessary treatment is repeated, with the same disappointing result.

An ulceration of the edge of the tongue occurring in a syphilitic subject may be directly due to the disease, or it may be occasioned by indigestion combined with the irritation of roughened teeth. In the latter case the administration of antisyphilitic remedies fails to cure it, and really ought not to be expected to cure it. But the diagnosis of syphilis is based upon the history given by the patient, and the fact that a man who has had syphilis may suffer, like anyone else, from an ulceration which is non-specific in character is quite forgotten. The more mercury that is given the greater the digestive disturbance is liable to become and the more rebellious appears to be the lingual ulceration. In such an "obstinate" case a complete cessation of the antisyphilitic remedies and the adoption of treatment likely to lessen the congestion of the oral and gastric membranes will usually be followed by a rapid healing of the ulceration.

In claiming that syphilis is too often overtreated and that the general condition of the patient is not always given the consideration it deserves, there is no intention of underrating the value of mercury and the iodides in controlling the symptoms of the disease and in materially shortening its duration. In the whole range of the Pharmacopœia there could scarcely be found remedies capable of producing more brilliant results. And yet even these potent remedies are of no value when given to a dead man! Nor do they accomplish any beneficial result in many cases in which the health and habits of the patient are such as to render their action *nil*. Indeed, as has been stated, their action is then more likely to be harmful than beneficial.

If the physician recognizes the fact that syphilis usually tends to run a mild course, that the patient as well as the disease should be treated, and that hygienic measures can never be wholly supplanted by medication, then will he find that in the treatment of this disease the very best results can usually be obtained by very moderate doses. In the days when the value of mercury was estimated by the pints of saliva that poured out of a patient's mouth as his head hung over the bedside it was a very serious affair to have the pox. At least it must have been a most serious and distressing experience to have been treated for it by one of the physicians of that time, all of whom believed in combating the disease vigorously.

From that day to this (and the fact is well worthy of note) the dose of mercury has steadily lessened. A generation ago nearly every patient was mildly salivated, and even now some physicians believe that the drug should be pushed until the gums are slightly affected. Those who have opposed the use of mercury, and others who have pinned their faith to infinitesimal doses, have treated syphilis successfully, which only goes to show that nature will often cure a disease in spite of the doctor, and that possibly an unnecessary amount of mercury is still being prescribed.

Some have claimed that during the past three hundred years there has been a change in the type of the disease, and that it is no longer the virulent affection that it was in former times. Proof of this is entirely lacking, but one thing is quite certain: there has been a change in the type of the physician, not merely in the past three hundred years, but in the past thirty years. The horrible ravages of the disease, which were so common a generation or more ago, are no longer

seen in our hospitals and clinics, and the student of to-day can only learn of them through descriptions or portraits.

But there is still room for some improvement in the type of the physician who undertakes the treatment of syphilis, and the disease will yet appear still more benign when he trusts more to nature and less to drugs, and realizes that the injudicious treatment of syphilis may sometimes prove even worse than the disease itself.

THE TREATMENT OF SYPHILIS.

By M. B. Hartzell, M.D.,
Associate in Dermatology, University of Pennsylvania.

To treat syphilis successfully is at once easy and difficult. It is easy because we have well-known specific remedies whose administration, in the vast majority of cases, causes the prompt disappearance of the symptoms; difficult because, with the disappearance of the outward manifestations of the disease, the patient usually regards himself as no longer in need of medical advice, and is with difficulty persuaded to continue the treatment long enough to insure him against relapse. This difficulty, however, great as it is, may usually be overcome by firmness and tact. The patient should be made to understand that his future immunity from the malady probably depends in large part upon strict adherence to his physician's advice. On the other hand, the physician should see his patient at reasonably short intervals in order that he may carefully regulate the dose and manner of using the remedies prescribed. I confess to having but little patience with the man who thinks he has done his duty to his syphilitic patient when he has given him a hundred or more mercurial pills, with directions to return when these have been consumed.

There are but two remedies for syphilis—mercury and iodine; and the many drugs brought forward from time to time as efficient substitutes for these have had their complete uselessness demonstrated again and again.

Now, when should the treatment be begun? When the diagnosis is established beyond reasonable doubt, and not one day before; and this, in many cases, cannot be done before the appearance of constitutional symptoms. The diagnosis of the initial lesion, while as a rule easy, may be at times extremely difficult; and in my opinion it is best to wait for the eruption, or some other indubitable sign of infection. This is especially important in the case of suspected extragenital initial lesions. The existence of syphilis having been established beyond doubt, the treatment may be begun by the administration of some form of mercury, the particular form being, in most cases, of secondary importance. My own preference is for the mercury with chalk, or the so-called gray powder, in doses of from one to three grains, given three or four times a day. This rarely produces any intestinal disturbance, such as abdominal pain with or without diarrhea, untoward effects which are not uncommon when the much more popular protiodide (or green iodide) is given. Indeed, judging from my own experience, the latter very frequently causes pain and diarrhea, even in quarter-grain doses, if given for some length of time, and is likewise much more apt to produce ptyalism than the gray powder, even in moderate doses. It is rarely necessary to give more than six to eight grains daily, and often less is sufficient to cause the prompt disappearance of the symptoms. I do not believe it is ever necessary to produce ptyalism in order to obtain the full therapeutic effect of the mercury; upon the appearance of the slightest tenderness of the gums or any increase in the salivary secretion, the treatment should be temporarily suspended or the dose cut in half except in grave cases. In order to lessen the danger of producing a mercurial stomatitis, the patient should be directed to be scrupulously careful in attending to his mouth, using a saturated solution of potassium chlorate as a mouth-wash freely and often.

In rare instances we find individuals who are singularly insusceptible to the influence of mercury in any form. In these the dose may be greatly increased; indeed, large doses are demanded if we are to derive any benefit from its use. The quantity should be carefully increased from day to day until there is improvement in the symptoms, or until there is some sign of the effects of the drug upon the mouth or gastrointestinal canal. It goes without saying that in

such cases the patient should be under constant observation in order to prevent undesirable effects from the drug.

Should it be necessary, as it is sometimes, to spare the digestive tract as much as possible, or should the symptoms indicate an unusually severe infection, making it desirable to produce a powerful and rapid mercurial impression, inunctions of mercurial ointment should be resorted to, since these afford a certain means of rapidly introducing mercury into the system. One drachm of the official mercurial ointment should be carefully and thoroughly rubbed into some part of the skin daily, changing the locality at each rubbing in order to avoid producing a mercurial dermatitis. When employing mercury in this manner the mouth should be watched with more than ordinary care, since ptyalism frequently appears somewhat suddenly, and with more than ordinary severity. I regard inunction as the method of choice when it is desired to produce certain and rapid effects, and it is especially indicated in the treatment of infantile syphilis, a small quantity of dilute ointment being rubbed on the belly-band or undershirt daily. The chief objections to this method are the time consumed in the rubbing and its uncleanliness; but its advantages largely outweigh its disadvantages.

As to the hypodermic use of mercury which has been advocated extensively in recent years, I believe this should be reserved for cases in which it is necessary to produce a decided mercurial impression as rapidly and as certainly as possible, as in cerebral syphilis, or for those cases in which other forms of administration have failed to exert any beneficial effect. If it is deemed advisable to employ it in this way the soluble preparations should always be selected in preference to the insoluble ones, since the rate of absorption of the latter cannot be controlled, and disagreeable or even serious results may occur in consequence.

The intravenous injection of soluble mercurial salts which has been advised by some authorities should only be mentioned to be condemned, as it does not possess any real advantages over hypodermic injections and is not unattended with danger.

Thus far we have been considering the treatment of the secondary stage of syphilis. In the treatment of late or tertiary syphilis the iodides, preferably the iodide of potassium, are the remedies of choice, either alone or combined with some mercurial, as in the so-called mixed treatment. As a rule, to which exceptions are rare, the use of iodide of potassium is followed by the rapid disappearance of the tubercles, ulcers, and gummata which are such characteristic lesions of this stage of the malady. Just here a word as to the dose of the iodides. Years ago Mr. Jonathan Hutchinson called attention to the rather curious and interesting fact that small doses of the iodides are, in most cases, just as effective in the treatment of syphilis as large ones; and I have many times verified the correctness of this observation. I have seen large patches of ulcerating syphilitic tubercles disappear within a few weeks under the administration of 2- to 3-grain doses of potassium iodide. In view of this fact it seems quite unnecessary, and therefore an error, to give the large doses in ordinary cases which are customary with many physicians. Of course, when the syphilitic lesion is situated in some part of the central nervous system, where, owing to the delicacy of the tissues involved, irreparable damage may result in a short time, one should not take any risk and large doses may be given; but in the ordinary cutaneous lesions all that the drug can accomplish may be obtained from 3- to 5-grain doses, and all risk of disturbance of the stomach or of producing serious iodism may be avoided; and it should not be forgotten, as it too often is, that the symptoms of iodism may, in exceptional cases, be quite as severe as those of syphilis, or even more serious.

In rare instances the iodides fail to produce their usual effect, given in any dose; fortunately in these cases mercury seems to be unusually effective. I have known instances in which the diagnosis of syphilis was about to be abandoned because of the failure of the iodides to effect any improvement; but in these same cases prompt recovery occurred after mercurial inunctions.

I have never been able to quite convince myself that there is any real advantage in the so-called mixed treatment over mercury and the iodides given separately; and I, as a rule, much prefer to give the iodides alone in tertiary syphilis,

following them, after the lesions have disappeared, with mercury. Or alternating courses of the iodides and mercury may be used in cases which show a decided tendency to relapse.

In recent years many new combinations of mercury and of iodine have been introduced as substitutes for the older preparations, for which numerous advantages have been claimed, usually less liability to produce ptyalism or iodism; but with the diminution of the liability to produce untoward effects there is usually a corresponding decrease in therapeutic activity, and I have not found that any of these possess any real advantages over the older and well-tried combinations.

Now a word or two as to local treatment. In the eruptions of the secondary period local treatment is usually of secondary importance, and is only indicated when exposed parts, such as the hands and face, are the seat of very noticeable or disfiguring lesions. In such cases the daily application, with gentle friction, of calomel ointment, one drachm to the ounce, may hasten appreciably the disappearance of the eruption, but, after all, the chief reliance must be on the constitutional treatment. In the scaly eruptions which are frequently seen upon the palms and soles, constitutional treatment, however well directed, often fails unless accompanied by local applications; and here nothing is better than an ointment of ammoniated mercury, 40 to 60 grains to the ounce, well rubbed in twice a day. The healing of the shallow erosions and ulcers which occur so frequently upon the lingual, buccal, and pharyngeal mucous membrane is very materially accelerated by the thorough application of the acid nitrate of mercury every four or five days; indeed, in many cases these lesions persist for months without some such local treatment. The use of tobacco in these cases should be forbidden absolutely.

In the ulcerative lesions of the tertiary stage local treatment is always indicated; and in my experience nothing is more efficacious or more easily used than the spread mercurial plaster as made by many manufacturers of druggists' supplies. A fresh piece of this a little larger than the ulcer should be applied daily, first washing away accumulated discharge with a 1:4000 bichloride of mercury solution and thoroughly drying. Usually no further dressing is required, but if the plaster is not sufficiently adhesive it may be kept in place with a few turns of a roller bandage. Iodoform is one of the most generally useful local remedies, but its abominable odor limits its use to hospital and dispensary practice. Aristol and europhen, especially the latter, are likewise useful, but are by no means as efficient as the ill-smelling iodoform.

An important question which invariably arises during the treatment of syphilis is, How long shall the treatment be continued? and a definite reply is not always easily given. As a rule, it should not be less than two years, and often three years is better. During the first year mercury should be given continuously, the dose being carefully regulated according to the patient's susceptibility to the drug. During the second year treatment may be interrupted from time to time for a week to two weeks, provided there have been no evidences of the malady during this time. If, however, symptoms continue to appear during the second year, treatment should be continued for a third year. In the third year of treatment iodide of potassium and mercury may be given alternately with advantage, or, if preferred, together, as in the mixed treatment.

THE TREATMENT OF SYPHILIS.

By W. A. Hardaway, M.D.,
Professor of Diseases of the Skin and Syphilis in Washington University, St. Louis, Missouri.

In reply to the courteous note of the editors of the Therapeutic Gazette, I beg leave to submit the following replies to the questions sent me. I have heeded their request to make my statements brief and dogmatic:

1. I never put a patient on specific treatment until I am absolutely sure that he has syphilis, and I believe that we can never be quite certain of that fact until the period of the general manifestations of the disease. Violation of this cardinal rule leads to an infinite amount of mischief.

2. The only trustworthy way of treating syphilis is with mercury and the iodine preparations.

There are a number of different methods of introducing mercury into the sys-

tem, namely, by the mouth, by inunction, by fumigation, and by hypodermic injection, and each, undoubtedly, has its place in appropriate cases.

However, the most practicable manner of administration is by the mouth, and although at times, and in exceptional cases, attended by some drawbacks, ordinary skill and care will obviate such difficulties as may arise. In my judgment the protiodide of mercury gives the best results in practice. Usually from one-sixth to one-half grain three times a day will suffice, but somewhat larger doses may be given if urgently demanded. The golden rule is, I think, to give only such amounts of the drug as will do the work in hand with the least detriment to the patient. In nearly all cases of early syphilis iron or iron and quinine should be combined with the mercury.

3. The inunction method is a most valuable way of giving mercury, and while it may be used exclusively, I believe it is better to employ it in alternation with mercury by the mouth.

Hypodermic injections of mercury are indicated when a speedy effect is urgently demanded, or when other methods are contraindicated or fail of effect. The bichloride of mercury meets all the requirements of efficiency and safety, and is free from the dangers incident to the insoluble salts.

4. The iodine compounds are used by some physicians in the early stages of syphilis, and there is no doubt that they give much relief to the arthritic pains and neuralgias of that period, but as a rule this method of medication should be reserved for the second year and then administered in conjunction with mercury. However, there are, necessarily, exceptions to this rule, as in the case of precocious syphilis, etc. Of the enormous value of the iodides, and preëminently the iodide of potassium, in late secondary and tertiary lesions there is no doubt, but even here mercury should be prescribed at the same time and kept up for a season after the discontinuance of the iodide.

In this place it is opportune to call attention to the fact that in daily practice we often meet with apparently intractable cases of late syphilis, which persist or repeatedly relapse in spite of the most heroic specific treatment. In such cases absolute omission of all antisyphilitic medication for a season, or the combination with specific drugs of appropriate tonics and stomachics, especially iron and nux vomica, will soon bring about satisfactory results. In other words, it is altogether too common a habit to give mercury and the iodides in a routine way in syphilis, and to ignore the patient who happens to have the disease.

5. The question of the length of time constitutional treatment should be kept up is of much practical importance. So far as the administration of mercury is concerned I must confess to little confidence in the long-continued, uninterrupted courses running over months or years. In my judgment some form of the so-called interrupted treatment is to be preferred.

In a fresh case of syphilis a more decided impression can be made on the disease in the first year than at any other time, therefore the physician should take advantage of his opportunity, and, the patient's condition allowing it, push the treatment with steadiness and vigor. With brief intervals of rest, it is advisable to keep up the mercury for at least six months; at the end of this time omit treatment for a month or six weeks, giving tonics in the interval. At the expiration of the allotted period order a course of inunction or put the patient again on the protiodide or other suitable mercurial. Henceforth, that is for the next year and a half, the periods of active treatment are gradually decreased in length and the periods of rest increased.

Usually in the beginning of the second year the iodide of potassium is added to the mercury, constituting the mixed treatment. Of course, it will be understood that the dose and method of mercurial treatment, the time for the addition of the iodides, the length of time occupied in active medication, or in abstention from medication, will depend largely upon the case in hand.

Finally, I believe that even in the absence of all symptoms of the disease the patient should follow up the period of active treatment with at least two courses of specific medication in the twelvemonth for three or four years longer.

Experience has forced the conviction upon me that treatment, and *much* treatment, offers the best guarantee for the patient's future welfare.

6. Care of the skin in the way of baths is always advisable during the treatment of syphilis, but I am skeptical of the specific virtues of the thermal baths of this or other countries. Any particular good arising from a sojourn at such places is due first to the greater regularity of treatment—if not overdone, as sometimes happens—and to the more orderly life and freedom from care which the patient enjoys.

7. The treatment of hereditary syphilis is practically the same as for the acquired disease. My own preference is for inunction in the disease occurring in infants. Many physicians, however, prefer calomel, gray powder, or the bichloride, by the mouth or subcutaneously. In lesions of the bones and viscera the mixed treatment is very efficacious.

8. The whole train of evil consequences, both present and remote, that may attend upon syphilis in the married state has long been recognized, and the subject has been discussed from many points of view. The question is a very vital one in its social and medical aspects, and probably every physician has had to face it at some time in his professional life.

It is undeniably a fact that syphilis runs its course in some persons in from a year and a half to three years, and then ceases entirely. We know, on the other hand, that a certain number of cases are malignant from the start, and that in still others, after a variable period of quiescence, either mild or formidable tertiary symptoms may appear. We are also aware that many syphilitics marry, never infect their wives, and beget healthy children. I believe, moreover, that in a certain proportion of cases, after a couple of years or even less time, the disease ceases to be propagable; but I deny most emphatically that it is a rule without numerous exceptions, and I affirm that any course of action based on such teachings is a grave error.

Some syphilitics should never marry at all, namely, those prone to repeated relapses, especially in the shape of mucous patches, those presenting symptoms of malignant syphilis, and those in whom the disease has attacked some important organ; and the prohibition is absolute for persons who may have suffered from any of the accidents of nervous syphilis (Fournier). In making up the pathological balance sheet, I should also add to the list those persons having the history of nervous affections in their families.

In endeavoring to form an opinion on this subject many physicians go no further than this aspect of the case: Is my patient sufficiently well to marry? Has he met with sufficient thoroughness the various and difficult probationary conditions that fit him for marriage? These questions being answered satisfactorily, the professional adviser dismisses the matter from further consideration. Unfortunately there is another side, and a very dark one, to this question that we must bear in mind. A case that has progressed most satisfactorily may, years afterward, develop the gravest tertiary lesions, which may permanently cripple, or even cause death to the father and husband. Then there is no question of infection for the wife or children, but it too often means total ruin to the family. How frequently these catastrophes occur one must ask the ophthalmologist and neurologist.

A conservative rule of conduct is to refuse professional consent to the marriage of a syphilitic for full four years from the date of infection, this period being occupied with appropriate specific and hygienic treatment, and, further, that there should have been at least two years of complete immunity from specific accidents. I must confess, however, that even if all the most rigorous conditions have been fully complied with, I should still hesitate to give "any absolute and exact guarantees" to a syphilitic.

In spite of all the favorable cases and favorable conditions, the physician can assume no responsibility at all; he ought to present a fairly complete survey of the subject in all its bearings, but, having done this, the patient himself must take the risks, near or remote, that belong to his disease.

THE TREATMENT OF SYPHILIS.

By Edward Martin, M.D.,
Professor of Clinical Surgery, University of Pennsylvania.

The treatment of syphilis should begin as soon as the diagnosis of infection is made. Thus when there is a history of primary incubation of more than two weeks and there develops a papule

or superficial abrasion not otherwise to be accounted for, treatment should begin with the immediate excision of this lesion and careful microscopic examination for the spirochæta pallida. In case the latter is found the immediate administration of mercury is indicated.

If the primary incubation is uncertain, or if there are other and adequate causes for the development of the lesion, a period of waiting for a week is justifiable, since during this time a simple lesion under appropriate treatment will heal, while the primary sore of syphilis will show distinct induration and probably beginning adenopathy. Should the latter conditions be unmistakable, even in the absence of an incubation period the lesion should be excised, unless it is so placed that this operation will involve deformity, and constitutional treatment should be instituted.

If in the absence of a history of exposure and period of incubation the sore remains distinctly atypical, it is advisable to postpone treatment until the first signs of constitutional involvement become manifest. The one to be looked for, and which precedes at times by one or two weeks the skin and mucous membrane manifestations of the disease, is anemia, characterized by diminished hemoglobin and slightly increased leucocytosis.

There seems no good reason for postponing constitutional treatment until secondaries develop, unless it be accepted that the latter form the only ground for an assured diagnosis. It, however, should be remembered that there is a type of syphilis in which secondaries never develop, but in which, perhaps because of absence of treatment, tertiaries may appear later. If this fact be recognized, the appearance of secondaries will no longer be regarded as of so great diagnostic importance.

The treatment of syphilis in all its stages is based on the judicious use of mercury. This drug may be reënforced by the addition of iodides or iodine in the tertiary stage of the disease, or in those exceptional cases which exhibit deep and destructive lesions in the early stages, but mercury should never be substituted by iodine or the iodides.

The most potent factor in overcoming the poison of syphilis is the vital resistance of the cells, and this is brought to its maximum by a condition of perfect health. The second factor of importance in accomplishing cure is the judicious use of mercury.

In beginning treatment the patient is given directions in regard to his diet, exercise, environment, hours of sleep, which have for their end the bringing of his vitality to its highest point. The condition of his kidneys is subject to a careful study, since all forms of nephritis render the proper administration of mercury difficult. His teeth should be put in perfect order. Tobacco and alcohol are absolutely tabooed. No article of diet is forbidden, but he is instructed to eat moderately, chew well, and carefully regulate his bowels.

He is given, whenever this is practicable, mercury in the form of inunction, supplemented by vapor baths.

It has happened that I have had charge of many doctors suffering from syphilis. This disease is far more prevalent in the medical profession than is generally believed. A large percentage of cases are contracted in the course of professional work, and of these in many cases the disease is not suspected until the outbreak of secondary symptoms makes the diagnosis of an indolent, obdurate, extragenital ulcer unmistakable. Undoubtedly the great majority of doctors treat themselves, and successfully. It is as a rule only in the obdurate cases that they seek help, and it is with them that I first saw the value of inunction and vapor bath treatment, since before consulting another they had usually exhausted the resources of internal treatment, inunctions without baths, and hypodermic medication. Moreover, in every great cure of the world the treatment is based on baths and inunctions.

This treatment requires some privacy, a thermal cabinet, which can be procured at an expense of a few dollars, a woolen undershirt, and a fresh, soft mercurial ointment. The routine followed by the patient is as follows: He is directed to perform calisthenics and take deep breaths for three minutes, during which time he heats his cabinet. He sits in this for from eight to fifteen minutes until he experiences a drenching sweat. This must be distinguished from the condensation of moisture on his body from the vapors of the bath. He then very quickly dries himself with a rough towel, lies down in

a blanket, which is folded over him, and rubs into one side of his chest the indicated dose of mercurial ointment. This for five minutes. In ten minutes more he again dries himself with a towel, not, however, rubbing off the mercurial, puts on his thick undershirt, and over this puts his ordinary night garment, this treatment being taken just before the bed hour. The next morning he takes his customary bath.

Each night the seat of rubbing is changed—to the other side, to the front of the chest, to the back on one side and on the other side, to the belly, to the arms and forearms. The undershirt is kept, since it becomes more valuable in proportion to its age. Digestants are administered when required, and it is well to supplement the treatment by a tonic such as the compound hypophosphites with quinine, or an emulsion of cod-liver oil with hypophosphites, this particularly when there is loss of weight.

As to the dosage of mercurial ointment, this varies with each individual. The proper quantity to be given is that which either causes the disappearance of specific symptoms or prevents them from developing, and which interferes not in the least with the patient's general condition. The largest dose which can be taken and accomplish these ends is the one for that patient, and moreover this dose varies from time to time.

The principle of increasing the quantity of mercury taken until slight salivation develops, then cutting this dose in half and regarding it as the tonic dose for that individual, is not practicable, since the tonic dose for one period of the year may be inefficient for another period and may cause salivation still later.

The best rough index as to the proper dosage is the patient's body weight and the sense of fitness for work or play. When either of these indices becomes subnormal—it is usually both—it means one of two things: that the syphilis is not sufficiently controlled by the mercury given, or that the mercury is given in excess. In the former case there are likely to be some surface manifestations of the disease not properly held in check. In the latter case stopping the treatment, but continuing with the exercise and vapor baths and tonics, will be followed by prompt betterment.

It happens at times that this inunction treatment is impossible. Under such circumstances, providing the stomach and bowels be kept in perfect condition, satisfactory results may be accomplished by mouth administration. The drugs I prefer are protiodide of mercury, mercury with chalk, and mercurol. The particular selection will be based on the tolerance exhibited by the patient's stomach. Sometimes with one form there will be colicky pains, diarrhea, and chronic indigestion, when the other form can be taken perfectly. No form should be administered which keeps up a low grade of gastroenteritis, since thus there is irregular absorption, the general vitality is lowered, and the disease is encouraged rather than inhibited. It would be far better to forego entirely mercurial treatment than to produce the gastric and intestinal disorders which so frequently follow persistent and injudicious mouth administration of mercury.

The hypodermic administration of the drug is an extremely valuable method of treatment, but is open to the objection that at times it causes severe and even crippling pain. This will happen to patients who previously have taken dozens of injections without suffering in the least. There is no way of guarding against it. It is a method which will sometimes have to be used.

As to the dose of the drugs, each case is a law unto itself. The average dose of the inunction will be one drachm a day in a series of from six to twelve inunctions, followed by a period of rest of from three to five days for the first year of the disease. I have many times doubled and trebled this dose, and sometimes have been compelled to cut it in half. In the latter case it is usually desirable to lessen the number of rubbing days and increase those of rest rather than to lessen the dose.

The treatment should be most intensive in the early period of the disease—*i.e.*, the first year. It should be continued, as a rule, for two years steadily. After the fourth year, and through life, it is well to give patients who have suffered from syphilis spring and fall a course of from six to twelve inunctions.

Where mouth administration is practiced periods of treatment and rest should alternate as in the case of inunctions.

Alternation of these two treatments is often quite serviceable. In the latter part of the second year it is usually customary to give iodide or iodine. This should be in doses so small as not to interfere in the slightest degree with the condition of the stomach.

In the late tertiary stages of syphilis characterized by phenomena which are often parasyphilitic and quite beyond medicinal treatment, it is customary to give enormous doses of mercury and the iodides. These very exceptionally produce brilliant results. As a rule they act disastrously upon the patient. I have in some instances seen syphilitics exhibiting premonitory symptoms of ataxia, or cerebral infiltration, rapidly and completely cured by the judicious and moderate use of mercury and potassium iodide. I have never seen any benefit accrue from the use of these drugs when the sclerotic or vascular changes are well advanced, but have in numbers of instances seen them wreak great havoc. If it is considered wise to give large doses a trial, this trial should be thorough and brief and should not be repeated.

THE TREATMENT OF SYPHILIS.

By Granville MacGowan, M.D.,
Los Angeles, Cal.

The treatment of syphilis covers all periods and phenomena of the disease, and commences with the initial lesion. I teach that the only treatment usually necessary for chancroid or chancre is the cleanliness that is to be obtained from gauze dressings, moistened with a solution of sublimate of a strength not great enough to give occasion to a dermatitis when covered with gutta-percha tissue, and yet sufficiently strong to obtain a distinct inhibitory action upon the growth of pus-producing cocci on the one hand, and the specific action observed upon the other hand wherever mercury is brought in contact with the lesions of syphilis. A solution 1:4000 of bichloride in normal salt solution may be assumed as a standard. If the tissues are sensitive this may be weakened by adding distilled water. It need never be made stronger.

For the male the dressings should be prepared by cutting many pledgets of sterile gauze, 3 to 4 centimeters square, which are then crowded into a wide-mouthed bottle and the solution poured over them. With a good fitting cork the bottle may be carried everywhere by the patient, who, in addition, is to be provided with a pair of dressing forceps to be used for removing the gauze from the bottle when needed. Should the patient have a long prepuce and the sore or sores be situated upon the glans, in the sulcus, or upon that portion of the foreskin that folds in contact with the glans, he is to be instructed to retract the foreskin, cleanse the parts that are near the ulcer and come in contact with it with some absorbent cotton wet with plain water. This is afterward to be destroyed by burning or by throwing it into the closet bowl. A piece of gauze is then removed from the bottle, placed upon the ulcerated surface, and the prepuce drawn forward into its natural position. This action is to be repeated each time he urinates, which insures attention to the sore from four to ten times a day. When the foreskin is short or the ulcer comes far back upon the penis, cover the wet gauze with gutta-percha tissue to preserve its moisture, securing the whole dressing with a rubber band or with a small bandage. The change of dressings should be made at the same intervals. The same dressing may be applied in the same way upon any other part of the body where it can be held in place by bandages or strips of zinc oxide adhesive plaster, care being taken before using them upon any hairy part to shave the immediate region of the ulcer and a considerable space around it. Under this treatment chancroids will generally heal in from a week to ten days and without complications. The initial lesion of syphilis will nearly always heal most kindly in about the same time, but all of the infiltrative induration surrounding the sore does not disappear; indeed, this thickening not infrequently endures for a year or more. Elevated flat chancres sometimes become covered with a gray membrane which, like that of the mucous patch, consists of fibrinous exudate enmeshing scanty small groups of pus cells mixed with microörganisms. Massive indurated lesions sometimes tend to break down rapidly, forming irregular necrotic ulcers. These types require the extra stimulation of a specific cauterant, which is found in the reasonable application of

the acid nitrate of mercury. The surface of the ulcer should be cleansed and thoroughly cocainized with crystals or a 10-per-cent solution of muriate of cocaine. It should then be dried and the acid nitrate applied by means of a small swab made by wrapping the end of a wooden toothpick with as little absorbent cotton as it is possible to use for the purpose. This swab after being dipped should be forcibly shaken several times to remove all extra acid, and then carefully brought in contact with all parts of the ulcerated surface, which when the application is finished should have the grayish-white coating peculiar to the use of the acid nitrate. Used in this way, no protection to the surrounding tissues is necessary. Immediately following this the moist dressing referred to above should be applied.

Chancres upon the tonsils, the gums, or the tongue will always disappear more quickly if they are treated with the acid nitrate and a mouth-wash of sublimate 1:10,000 in a saturated solution of chlorate of sodium used frequently thereafter. Persons having chancre of the lip should be isolated. The sore, if ulcerated, should be treated once with the acid nitrate, and thereafter the ointment of colloidal mercury kept applied to it. The initial lesion in this situation is often severely painful. I have seen this pain markedly lessened by frequent applications of the saturated alcoholic solution of methylene blue.

I do not advocate the internal use of mercury in all cases of lesions which appear to be chancres, but I strongly deprecate the commonly accepted teaching that it should never be used until the appearance of unmistakable secondary lesions. The associates surrounding an individual, and the public, are entitled to consideration; and at times the individual's own happiness and convenience is best guarded by expediting the rapid disappearance of such a deformity without regard to whether there may be a future doubt as to the accuracy of the original diagnosis. Intradermic injections of sublimate should be commenced immediately in chancre of the lip, and continued until it is well on the way of healing. When dealing with naturally lewd people, persons given to drunkenness, or that class we all meet with terror, who have no regard for the rights or welfare of others, I advise that full doses of mercury be given from the very moment that one is reasonably satisfied from the clinical picture that he is dealing with a chancre, so as to promote and hurry the cure of a condition that is a menace to every one who comes in contact with the infected individual. It is a matter of little moment in such cases whether the skin rashes be belated or changed so that they may not be clear to the unskilled observer, or whether they do not occur at all.

Chancres of the meatus and of the urethra are best treated by small bougies, made by working a 25- to 50-per-cent calomel ointment into little rolls of absorbent cotton. These are to be cut squarely across the end and introduced into the urethra by being slid by a probe or wooden toothpick along a grooved director. A considerable portion of the roll should be left protruding from the meatus so as to guard against its slipping entirely into the urethra and perhaps passing upward to the bladder. The dressing should be renewed at each urination.

Chancres in the female are best treated by the moist sublimate gauze dressings wherever they can be used. Intravaginal or cervical chancres generally disappear kindly under the use of frequent hot douches of 1:4000 sublimate solutions. Where moist applications are not practical, as about the vulva or upon the mons, the hair should be removed from about the ulcers, each sore touched with the acid nitrate and powdered with calomel, or a 50-per-cent ointment of calomel or a 10-per-cent ointment of ammoniated mercury or the ointment of colloidal mercury kept constantly in contact with them. In times past I have freely used iodoform, aristol, iodol, antinosine, nosophen, dermatol, and many other powders in the treatment of chancre. All have many advocates. None possess any special virtues except iodoform, and its odor should be a bar to its use for this purpose. I think they can all easily be dispensed with. The treatment with hydrogen dioxide uses up valuable time. Agents like silver nitrate or copper sulphate are distinctly irritating, and I have often seen them lead to the complications of lymphangitis and inflammatory bubo. The use of caustics like nitric acid, carbolic acid, and sulphuric acid, perhaps sometimes

necessary in chancroid, are never needed in the treatment of chancre. If there is rapid destructive ulceration the best procedure is surgical. After the disinfection of the surface of the sore with carbolic acid and alcohol, all dead tissue should be removed with curette, scissors, and forceps, and the wound cauterized thoroughly with a 50-per-cent solution of zinc chloride or the Paquelin cautery, and a moist dressing of bichloride of mercury or borosalicylic solution applied until it heals.

The facies developed in a syphilitic within a period of from six weeks to six months after the appearance of the chancre by the protean manifestations of blood poverty, caused through the slowly accumulative action of the poison, gives the key to the treatment necessary for him. More hemoglobin, more red corpuscles are needed. Any measure that combats anemia is a rational agent to use in the treatment of syphilis. Stimulants of the appetite; good food of a nature that may be easily digested and of the best quality the purse of the sick man can buy; fresh air, preferably that of the wide, wide, world which may be obtained in the mountains or by the sea; sunshine; freedom from excessive toil, but the having of some mental or physical occupation is necessary to divert the mind; avoidance of the debilitating influence of the passions, sobriety, and nightly rest; the keeping of the life channels free of waste by the free use of water inside and out and laxatives when the call for them arises; together with easily assimilated preparations of iron, arsenic, and manganese, are quite as necessary as the specific treatment to be found in the judicious use of mercury. All agree that when the distinctive eruptions of secondary syphilis appear upon the skin and mucous membranes it is proper to commence what is termed "specific treatment;" but much strife has arisen among writers and teachers as to which mode of administration and which preparation of mercury is the best, and how much may be given with benefit. Out of these disputes much good has arisen, for once again it has been shown that all roads lead to Rome, though some are smoother than others. It may be stated as an axiom that to any particular individual that preparation of mercury should be given which controls the progress of the disease in him most favorably with the smallest quantity possible, without producing any of the unfavorable or disagreeable symptoms of the poisonous action of the metal upon him.

Mercury may be made to enter the circulation:

First, by rubbing it into the skin—inunction—an old, dirty, but ofttimes useful method, more in favor in Germany, Austria, and Russia than in English-speaking or the Latin countries. Three preparations are in use: (1) Ordinary mercurial ointment; (2) the ointment of soluble metal or colloidal mercury; (3) mercurial vasogen. Of these I prefer the preparation of colloidal mercury, for it is not so dirty, rarely irritates the skin, and is less liable to produce salivation, and it is quite as or even more active therapeutically than common mercurial ointment. Unfortunately its price and the care necessary in handling it has prevented its use becoming popular. I have it put up in wax papers, each to contain three grammes, the quantity for one rub. Millions of people have been rubbed for syphilis with mercurial ointment, and this "blue butter," as it is familiarly termed, will on account of its cheapness, despite the often unpleasant dermatitis it frequently causes, remain a favorite until the end of time. The 33 1/3 per cent preparation should be used, and it is best dispensed in wax papers containing one to three grammes each. It is more easily absorbed if mixed with an equal quantity of lanolin or adeps lanæ. The dose of mercurial vasogen is three grammes. It rarely produces any irritation of the skin, is active therapeutically, but is too expensive for use by poor people.

The inunction method is used almost exclusively at the Hot Springs of Arkansas, Aix-la-Chapelle, and many minor thermal resorts which depend largely for their patronage upon luetic patients. It is certain that more mercury can be used in conjunction with the hot baths at these springs, and that severe eruptions or ulcerative affections often clear up with amazing rapidity under the combined influence of the inunctions and the waters. To these latter it is customary nowadays to attribute certain radioactive qualities, which may explain a part of their apparent therapeutic virtues. Unfortunately the effects are seldom as lasting as

less vigorous but more prolonged treatment at home.

In carrying out inunctions I have my patients follow the cycle of the Kür as taught by Sigmund and the elder Hebra. A preliminary hot bath taken at night is to be followed by the steady and slow rubbing of the prescribed quantity of the ointment for from twenty to thirty minutes into the smooth, thin skin upon the inner surface of the left thigh and groin; the limb is then to be enveloped in a piece of flannel which is bound in place and remains until morning. The second night, without a bath, the same process is gone through with upon the inner surface of the right thigh and groin; the third night the left side of the abdomen and loin; the fourth night the right side of the abdomen and loin; the fifth night the inside of the left arm, forearm, and the surface of the chest directly beneath the axilla; the sixth night the same space on the right side of the body. On the seventh night another hot bath is taken, but the rubbing is omitted. On the eighth night a second course is commenced, proceeded with and finished in the same order. Usually from fifteen to forty rubs are given before the manifestations of the disease are under control, depending upon the character and intensity of the eruption. These instructions may be repeated at a later date, but it is usual after the subsidence of marked symptoms to further treat the patient with small doses of mercury in some one or other of the preparations to be mentioned, by the mouth. This method of cure is entirely unsuitable to very hairy persons, or to those subject to dermatitis from slight causes or to attacks of urticaria or multiform erythema.

I think, in most cases of syphilis, inunctions are not advisable; but where mercury, when given in any form by the mouth, always causes enteritis, it is of great use; and where people, as is often the case, forget to take their pills at the proper time, or do not have the time to come for intradermic injections, it is the only method available.

In small children it is not necessary to rub the ointment into the skin. If it be rubbed plentifully into a piece of flannel and this be bound upon the abdomen or back, sufficient will be absorbed by the skin and lungs.

Intradermic Injection of the Soluble Salts of Mercury.—This mode of administering mercury was first used at the K. K. Charité Hospital in Berlin by Lewin about thirty years ago. I learned it from him when I was his student. It is a very efficient and certain method for the obtaining of the rapid therapeutic effect of the metal when needed in fulminating secondary or rapidly destructive cases of tertiary syphilis. About most things Lewin was not clean, but he was excessively particular about scrupulous cleanliness in the preparation and the giving of these injections. I have given many thousands of them, and have never had an abscess follow their use, but painful, hard nodes are not uncommon, and after from one to two dozen injections it is usually necessary to cease the treatment for a time so the patient may have a chance to use his back without discomfort. The best preparation is sublimate, the commencing dose .002, which is gradually increased to .012. The method of its administration is essential. The salt should be dissolved in hot, preferably distilled, water in a sterile glass vessel. The needle should be boiled before using, and the skin sterilized with the same care one would use in preparing it for a laparotomy. Further, the needle must have a sharp point and its cannula be about 1¼ inches long. Care should be used that no air enters with the injected fluid. The syringe is to be held perpendicular to the plane of the tissues selected for the injection, usually that of the lumbar spinal region, or the buttocks, and thrust suddenly and forcibly through the skin into the muscles beneath. Its point is to be then gently withdrawn the least bit so as to be sure it is not in a vein, and the contents injected very slowly. After the withdrawal of the needle the spot should be gently massaged for a minute or two.

Intravenous injections of sublimate may be given and do not appear to be dangerous. They are, however, seldom necessary, and should in any case be given only by those who know enough to be surgically cleaner than most clean surgeons.

Intradermic Injections of Insoluble Preparations of Mercury.—Calomel and gray powder suspended in sterilized oils have been used in this way by many physicians. The method is not popular with

the profession in America and does not deserve to be. I have had no personal experience with them; the observation of misfortunes following their careful use by others has been sufficient to prevent any desire upon my part to experiment with them. Their action is uncertain, and the dangers possible from their use too certain for me to recommend their trial. Keys and Chetwood speak well of the use of mercury salicylate 1.55 suspended in 30 Cc. of sterilized benzoinol; 2 Cc. to be used once or twice a week by injection into the buttocks, under antiseptic precautions. I have used this preparation quite a bit, but cannot speak so highly of it as do these authors.

Mercurial Vapor Baths.—These are readily taken by using one or other of the numerous devices of rubber sheeting or cloth mounted on frames, so constructed as to tightly enclose the patient up to his neck, for the giving of vapor baths. The only additional apparatus needed is a small tin table from 6 to 10 inches high, under which a burning spirit lamp may be placed, and upon which from 2. to 4. of calomel may be thrown, so that the heat of the flame may vaporize it. It is best to have the patient perspiring well before the calomel is dropped upon the tin table; the exposure to the fumes of the vaporized mercury should be ten or fifteen minutes. This is not to be considered as a general procedure in luetic cases, but rather as one to be invoked in stubborn, scaly, or infiltrated papular or papulopustular syphiloderms which do not yield to ordinary measures of treatment. Obstinate palmar or plantar syphilides of the psoriatic or scaly eczematous types, onychias, and paronychias may nearly always be successfully treated by a modification of this method, the hands or feet being exposed to the mercurial vapors by thrusting them through holes in a box in which the vaporizing apparatus has been placed and set to working. The holes are to be closed by pieces of rubber sheeting wrapped closely about the ankles or wrists.

Preparation for Internal Administration.—(1) Sublimate, (2) calomel, (3) protiodide, (4) biniodide, (5) tannate, (6) gray powder, (7) cypridol. Up to the last quarter of the last century sublimate and calomel were very commonly used in the routine treatment of syphilis. We have better preparations now. Sublimate is only in exceptional instances available for internal use, but in strictly tonic doses combined with other drugs which we believe act as stimulants to more perfect tissue metamorphosis, and as red-blood builders, like arsenic, iron, strychnine, quinine, etc., is of value always in early and late lues.

The most popular salt is the protiodide, and the most useful preparation of this salt is the sugar-coated mixed pill put up by the Parisian pharmacists Garnier & Lamoureux, I believe from a formula originally furnished by Ricord. Each of these pills weighs .01. They keep indefinitely everywhere. They rarely gripe until the full constitutional dose is reached, or cause diarrhea. They are not expensive, and their appearance is not suggestive of the disease for which they are used. I do not know any better method for the use of these pills than that of the so-called tonic treatment of Keys, which is described in detail in the writings of the elder Keys and of his associate Chetwood. In the use of this or any other salt of mercury I do not deem it necessary to ever produce salivation even in a mild form in the treatment of syphilis, however grave the case. Intestinal disturbance, or the herald deposit of globules of mercury at the edge of the gums, the so-called blue line, should always be the signal for the temporary lessening of the daily dose.

In many persons who cannot use the protiodide I have found .06 (one-grain) tablets of the gray powder, three to six daily, may be relied upon for therapeutic efficiency, and they may be given over long periods of time. Other persons who have irritable intestines do better under .03 pills of tannate of mercury, six to ten daily. The biniodide is a much more powerful preparation than the protiodide, and is I believe of greater value in the later periods of treatment of what might be called latent syphilis. Abbott's granules of 1/67 grain each is a good standard preparation, the dose being from three to twelve daily, according to the effects desired. Cypridol is said to be a solution of the biniodide in the oil of sesame; the dose is three to five capsules daily. It also is of greater use after the active symptoms of the secondary stage have abated.

Many other preparations of mercury

have been introduced to the profession from time to time, but I fail to find the newer or stranger ones easier to control or productive of more benefit than those I have mentioned. Whatever salt be used the essential element in its use is that the dose shall be sufficient to benefit the symptoms of the disease and improve the physical condition of the patient.

It sometimes happens that the digestive organs are carrying all the mercury they can manage, and certain skin eruptions or mouth symptoms fail of betterment. In these cases the mercurial vapor baths or the application of ointments containing 10 per cent of ammoniated mercury, from 12½ to 25 per cent of calomel, citrine ointment 25 to 50 per cent with vaselin, or of Unna's mercurial plaster mull to the infiltrated, tubercular, or ulcerated patches assist greatly in furthering their disappearance.

Lesions of syphilis upon the face always call for the local use of mercurials. Lotions often serve well. One that has served me for scaly papular facial syphilis or syphilitic alopecia is:

℞ Mercury bichloride, 0.12;
Tinct. benzoin comp., 4;
Glycerin, 4;
Alcohol,
Distilled ext. witch-hazel, āā q. s. ad 120.

M. S.: Lotion to be thoroughly rubbed into face or scalp twice daily.

Tertiary infiltrated lesions are at times remarkably influenced by topical applications. One of the best is the mercurial plaster mull prepared by Biersdorff. It does not always adhere well, and should, if it be not entirely fresh, be covered with a piece of zinc oxide adhesive plaster a little larger than itself to insure its perfect contact with the skin. When the mull cannot be obtained a very satisfactory plaster may be prepared by melting equal parts of mercurial plaster and compound resin plaster together, spreading it the required size upon chamois, or better still, sheepskin. This will adhere when heated. Such plasters have great value in the treatment of gummata of the legs, sternum, or forehead.

I have at times found flexible collodion carrying as much calomel as can be suspended in it, and colored with a little carmine, a very useful application to superficial gummatous or serpiginous tubercular lesions about the nose or on the forehead. Several layers should be painted on twice daily with a brush made of a little cotton wound about a wooden toothpick, the loose collodion being cut away with scissors from time to time. Where such lesions are ulcerated healing is greatly expedited by lightly touching the sores from time to time with acid nitrate of mercury after previous cocoainization. Where these lesions are upon the trunk or extremities, their disappearance may be hastened by daily baths of sublimate, 4 to 15 grammes to an ordinary bath-tub of hot water. Sulphur baths prepared by adding 30 Cc. of Vleminckx's solution or 120 grammes of sulphuret of potassium to a bath-tub of hot water when taken daily seem to stimulate absorption and repair. The patient should remain in these baths from ten to twenty minutes, and they should be taken as hot as possible, from 100° F. to 120° F.

In ulcerative gummata or rupial lesions, where repair is slow or ceases under the use of mercury and the iodides, and the local application of mercurials fails to benefit, we have in iodoform a powerful and at times almost specific stimulant. In this condition, in my opinion, is its only field of usefulness in the treatment of venereal diseases. Ordinary iodoform cakes easily and is difficult to apply evenly, even when placed in a box and mixed with starch, acetanilide, or boric acid. Ekka iodoform is pure iodoform, and is a fine, dry, evenly crystallized powder that can be applied without waste and adheres evenly to an ulcerated surface. Its effects appear at times to be even more rapid when mixed with calomel in an ointment, as in the formula:

℞ Ekka iodoform,
Calomel, āā 4;
Lanolin,
Yellow vaselin, āā 15.

M. Put up in glass.

This ointment must not be exposed to the light, for it may rapidly undergo chemical change, the red iodide of mercury being visibly formed and may act as a caustic.

Mucous Patches.—As these are often the first symptom of lues to appear and the last to disappear, the prophylaxis and treatment of the mucous patch is of great interest.

Women are the subjects of mucous patch in the mouth less often than men,

for the reason that women less often use tobacco, drink raw spirits, or chew wooden toothpicks. Again, women are more careful about the toilet of the mouth than men are. Women have these patches form more frequently about the genitals and anus than men, for their natural discharges with the heat and moisture ever present favor their development.

In patches in or about the buccal cavity, in addition to general treatment, local cleanliness and the avoidance of irritating foods, drinks, medicines, or of habits which may create abrasions are to be avoided. By the use of a mouth-wash and gargle, after meals and at bedtime, of sublimate 1:4000 in a saturated solution of chlorate of potassium or chlorate of sodium, and containing a little listerine or similar aromatic preparation, and the application of a 25-per-cent solution of silver nitrate every second day, the patches will nearly always disappear. In patches accompanied by infiltration the mitigated stick of silver nitrate which contains some caustic potassium is more useful, and chromate of silver, obtained by applying successively solutions of 25 per cent of silver nitrate and 10 per cent of chromic acid to the sores, will often cure patches that refuse to yield to any other agent. At times I have found a saturated solution of chloride of gold and sodium, made by adding just a suspicion of water to the crystals, valuable in unusually stubborn cases. Crystals of sulphate of copper are sometimes useful, the applications to be made at about the same intervals as the silver nitrate. An alcoholic solution of sublimate ½ per cent, containing 2 per cent of salicylic acid, is a useful but sometimes very painful application. When all else fails the acid nitrate of mercury may be depended upon, but it should only be applied to a few patches at one time, and be preceded by local anesthesia of the parts.

Flat Condylomata.—More than any other syphilitic lesion these wart-like growths possess a peculiarly offensive odor. Wherever found they are to be treated by frequent baths of hot water and soap, sublimate baths, or baths of potassium permanganate 1:10,000 or of calcium chloride 1:20,000. Every second or third day a rather severe application of the mitigated stick silver nitrate is advisable; the subsequent dressing, if the patient be ambulant, should consist of frequent applications of a powder of pure calomel or of calomel and acetanilide, or if in the hospital, of ekka iodoform. The affected parts should be kept dry by the interposition of layers of absorbent cotton, sterile gauze, or linen lint. These should be frequently changed, for during the first few days of treatment they are apt to soon become moist and smelly. These simple measures failing, the growths may be thoroughly soaked with a 10-per-cent solution of chromic acid and then treated with the pure silver nitrate; or an alcoholic solution containing 10 per cent of sublimate and 2 per cent of salicylic acid daubed on them once or twice a day; or saturated solution of trichloracetic acid may be brushed on them; or the acid nitrate of mercury lightly applied—these measures being repeated as often as is necessary or wise. A powder containing equal parts of tannic acid, burnt alum, and acetanilide will be found useful. If the growths be extensive nearly all of these applications cause pain for a time. This can be avoided usually by dusting finely powdered anesthesin upon the wound fifteen minutes before the treatment, or applying cotton soaked in 10-per-cent solutions of beta-eucaine, nirvanin, or cocaine for a similar time. Sometimes in neglected cases the condylomata become so cauliflower-like and extensive that the only rational measure to be employed is their removal surgically; as they bleed very profusely the base of each growth should be seared with the Paquelin cautery.

Salivation.—This phenomenon of a localized mercurial irritation is an unfortunate happening at any time, but it is to be especially guarded against in the treatment of syphilis. It is almost always preventable, and the patient is usually responsible for it. Before mercury is given to a luetic person his mouth and teeth should be carefully examined and any accumulation of tartar removed, rough or sharp points smoothed, and decayed places filled. Careful instructions should be given for the use of an antiseptic mouth-wash and of the tooth-brush after each meal and at bedtime. In this way the globules of mercury circulating in the blood have no opportunity to clog up the fine capillaries in the gums about the roots of the teeth. They are kept in

motion, and no stasis with its accompanying salivary irritation and decomposition can take place.

Salivation having occurred, its cure is of urgent necessity. The mouth should be frequently washed with a 3-per-cent solution of chlorate of sodium or chlorate of potassium in a saturated solution of boric acid or normal salt solution. The 10-per-cent solution of chromic acid followed by the 25-per-cent solution of silver nitrate should be brushed into all the nooks and crannies of the gums, following one tooth after another; or lunar caustic may be fused upon a fine silver probe by heating the probe in the flame of an alcohol lamp or a gas stove and bringing it while hot in contact with the nitrate crystals or stick. This probe is then to be passed up between the loose edges of the gums and the teeth after the application of the chromic acid. If care is used and sufficient time taken the use of a local anesthetic in these manipulations can usually be dispensed with. Where the flow of saliva is profuse hypodermic injections of atropine sulphate .0006 to .0012 every six to eight hours will be necessary. Nourishing liquid or semisolid foods should be used, and tonics with fresh air are required. The duration of a severe case of salivation will be from ten days to six weeks, and it will often tax the ingenuity of the physician to relieve the pain and combat the dyscrasia caused by it.

For the purpose of teaching students syphilis is divided by writers into primary, secondary, and tertiary stages; an artificial grouping which has no special bearing upon the treatment of the disease.

Mercury will abate or destroy most of the tissue changes brought about by the poison of syphilis, but not all. The often suddenly formed new growths of syphilis consisting of closely packed aggregations of round lymphoid cells which undergo rapid necrotic changes producing malignant destruction of tissues, and which are known under the various terms of rupial, tuberculous, serpiginous, and gummatous syphilides, require, in addition to good food, good air, and mercury, some assimilable preparation of iodine to promote their speedy cure.

The choice of the form in which the iodine shall be given is a matter of some importance; the manner of its administration and a knowledge of the limitations of its dosage and general usefulness are necessary for the successful handling of these cases.

In the treatment of syphilis, iodine is given in the form of the iodides of potassium, sodium, strontium, and calcium; as metallic iodine dissolved in vasogen; iodine-vasogen, dissolved in the oil of sesame; iodipin; and in the form of hydriodic acid syrup.

Idiosyncrasies exist with relation to the use of iodine. Many people can take enormous doses of potassium iodide. I had once a client with a large cerebral gumma who took 80 grammes daily for nearly three weeks, and who did not show any improvement in any of his symptoms of cerebral disturbance until a daily dose of 50 grammes was attained, and who under the remedial action of the drug recovered perfectly from his disease and lived a useful life for years. As the antithesis of this I have a patient, a medical man, who suffers from a marked recurrent syphilitic erythema after twenty years, who never has been able to take iodine in any form; as little as three centigrammes of the iodide of strontium or of sodium produces invariably for him marked iodism.

These symptoms of iodism—the congestion of the nasopharyngeal and the laryngobronchial mucous membranes, the irritation of the intestinal tract, the nausea, the mental depression, and the pustular and bullous skin eruptions—are well known. It is often impossible to avoid them altogether, but much can be done to promote toleration of the drug in the major number of cases. The judicious use of the tincture of belladonna and bromide of strontium or ammonium will keep off the coryza and intense frontal headache and the bronchial irritation. Abundant dilution of the salt used in distilled water, milk, or teas made from flaxseed, sarsaparilla, or linden blossoms will overcome the irritation of the stomach and intestines. To people who can afford it I always give from four to fifteen cubic centimeters of some good preparation of the essence of pepsin in the liquid used to dilute the iodide, and am much pleased with the tolerance it establishes in irritable stomachs. When the skin reacts irritably to the excretion of iodine, frequent vapor baths and moderate doses of diuretics like the fluid extract of corn-silk

or of digitalis have proven useful in my hands.

I think the iodides of potassium, sodium, and strontium are best prescribed in saturated solutions, of which one minim practically represents one grain of the drug. When there is no haste to obtain full action the commencing dose should be five drops to be taken three times a day, well diluted in one of the menstruæ recommended. Every second day the dose is increased one drop until visible betterment of the lesion occasioning its use is seen. When more rapid action becomes necessary the dose may be increased five drops each day, great attention being given to keeping the skin, kidneys, and bowels active and the stomach at ease. The limit to the dose is its effect upon the disease. When the lesions commence to melt, as they often seem to, like ice in the hot sunshine, the dose may usually be dropped one-half with the expectation of the continuance of the therapeutic action. After the lesions for which the iodine has been used have entirely disappeared, it is well to cut out this remedy and return to the use of mercury alone or mercury with the blood-building tonics, for the too long continued use of iodine, like bromine, produces a train of symptoms of nerve and muscle degeneration which may occasion a worse disease than syphilis.

Iodine-vasogen used by inunction is of great value in syphilitic adenitis, epididymitis, or orchitis. It is also useful in the treatment of infiltrations and scaly papules of the palms and soles. Iodipin I have found of value in the treatment of nerve syphilis or rapidly destructive gummata of the palate and nose as an adjuvant to the iodide of potassium. When the iodides of the fixed alkalies are badly borne I have obtained very good results from its use. It is to be injected into the cellular tissues of the skin of the back and buttocks very slowly. The dose is large, 7.5 to 20 Cc. It is a thick oil, and flows slowly even when warmed. For the injections a metallic 20 cubic centimeter syringe with a cannula of very large bore is required. The large needle necessarily requires considerable force to enter the skin. This operation occasions some pain, but freezing the point of its introduction with ethyl chloride, while it increases the difficulty of the introduction of the needle, lessens or avoids the pain. Iodipin is sterile, but careful preparation of the skin, the syringe, and the needle should be considered necessary before giving the injections. As the injection progresses a large but soft lump forms beneath the skin, and the needle should be advanced a little as the lump increases until often the entire needle is buried before the injection is finished. It is best to hold one finger over the rather large hole left after the withdrawal of the needle; while gentle massage is made with the other hand to favor the spreading of the iodipin into the surrounding cellular tissues. The opening should then be closed with some absorbent cotton and flexible collodion. The entire injection will be absorbed in a few hours, and as the oil represents 25 per cent by weight of metallic iodine one may see that this is a very reliable way for introducing large quantities of iodine into the system rapidly.

Syrup of hydriodic acid given in doses of 4 to 30 Cc. three times daily can often be used when no other preparation of iodine is tolerated by the stomach.

Mixed Treatment.—When what is known as the mixed treatment of syphilis, the use of iodine and mercury side by side in a form different from what may be obtained by the use of the iodides of mercury, is deemed necessary by the practitioner, I believe it is best to give the two drugs separately, the mercury by intradermic injections of sublimate and the iodine as iodide of potassium in solution with pepsin. But if it is given for convenience only they may be given in solution together, and for this purpose I know of no more palatable or active preparation than the old formula for the syrup of Gibert.

Zittmann's Decoction.—In the course of thirty years of experience in the observation of syphilis, I have from time to time seen cases of malignant syphilis which could not be stayed by any other agent yield to the systematic use of that apparently very unscientific preparation called Zittmann's decoction. To those who are not too proud to use agents that cure, even if they cannot explain the manner of their therapeutic action, I recommend a careful investigation of its benefits in desperate cases in which its disagreeable qualities and irksomeness of administration stand not in the way of its use.

DIARRHEA IN INFANCY AND EARLY LIFE.

By Irwin H. Hance, M.D.,
Lakewood, New Jersey.

In nature's workshop repair of injury constitutes her most powerful characteristic; associated with this and equally powerful is her effort to resist the invasion of disease. Were we as physicians to heed more often the warning cries of threatening danger we would less frequently be called upon to treat the serious consequences of our omissions.

In no class of cases is this more applicable than in the diarrheas of infancy and earlier childhood. The mortality from gastrointestinal disease in children under five years of age exceeds that of measles, scarlet fever, whooping-cough, diphtheria, and typhoid. Consequently no subject is more worthy of our attention, and we should put forward every effort to prevent simple diarrheas from passing on to more serious and ofttimes fatal conditions. Diarrhea is a symptom, not a disease *per se*, due to increased peristaltic action of bowel, and always associated with a free discharge of fluids from the vessels of the intestinal canal. It is nature's initial effort to avert disease. It may, however, be the beginning of an acute toxic infection, an acute inflammatory process, or an acute infectious disease. Therefore it behooves us to note the warning and arrest the more serious consequences which so commonly and quickly follow. The younger the child the more urgent is the call for immediate attention, for with each successive year of life the child's resistance is materially strengthened.

In the beginning of an acute intestinal toxemia the degree of diarrhea is no indication of the severity of the attack; the character and appearance of the stools must be carefully noted. This along with the subjective symptoms gives one a pretty complete picture about as follows:

Invasion of disease sudden, restlessness, occasionally convulsions or coma and anorexia. Vomiting may or may not be present. If persistent, it is often very sour, and contains undigested food. There is a rapid pulse; usually a high temperature, even as high as 106° F. The tongue is furred, the breath heavy and at times foul. The stomach and bowels are distended with gas, but tenderness is usually absent. The stools are moderately frequent, offensive in character, and show signs of undigested food. The color of the stools is greenish, and mucus is small in amount. In neglected cases this condition quietly passes over the border into inflammatory diarrhea, with characteristic changes in appearance of stools.

All grades of the picture given above are to be met with, and if the physician is not called in to attend the recurring attacks the child after a time becomes cachectic, loses weight, and after valuable time has been lost is finally brought to the physician as a chronic case of malnutrition.

Nearly all diarrheas are associated with varying degrees of toxic infection in its acute or chronic form, and the transition from a simple fermentative diarrhea to an acute inflammation of the bowels is a very easy and ofttimes rapid one. The younger the child the more rapid the change, and the more urgent the need of removing all causes which aggravate or cause continuance of the inflammation.

It is not my purpose to enter in detail into a discussion of the pathological processes which produce this inflammation nor the location of the inflammation in the bowels. In general we may look upon the earlier diarrhea as the first indication of the inflammatory process.

When gastroenteritis or enterocolitis develops, all the symptoms become more persistent and are intensified. We must always bear in mind that we are dealing with the greatest absorbent tract of the whole body, and whether this is inflamed or not at the beginning it is sure to be if the diarrhea persists. There exist then two causative factors which aggravate this condition: First, a mass of fermenting material in the lumen of the tube, containing a toxin which not alone is dangerous of itself but acts as a local irritant to the mucous membrane; and secondly, an inflammation of the mucous membrane itself at different points in the ileum and colon. These two conditions with their diversified symptoms may be best illustrated in their extreme degree by the severe attacks of cholera infantum in infants, or of ileocolitis with dysenteric symptoms in older children.

In the light of our present knowledge all diarrheas are due to an infection.

When they persist we must always remember the possibility of an infection of a more serious character, as of typhoid fever.

Among the causative factors of diarrheas the presence of other diseases must ever be considered, particularly the so-called eliminative diarrheas of cardiac or kidney complications. The presence of foreign bodies and intestinal parasites as irritating causes of diarrhea must be thought of. Diarrheas of nervous origin are also commonly met with.

The universal cause in infancy is the food. In older children this is also the cause in a large percentage of all cases. To digestive disorders may therefore be attributed the large majority of all cases of diarrhea, from the ingestion of improper or bacteria-laden food. The frequency of feeding, and the character of feeding as regards the quality of the food and the quantity given, must ever be borne in mind. In infancy milk constitutes the only food during the first year of life, and whether breast or artificially fed the quality, as regards the proportions of fats, proteids, and sugars, or the quantity, as in too frequent feedings, may cause the diarrhea. Later on the variety as well as the quantity and quality of the food must be considered.

The treatment of diarrhea in infancy ofttimes presents the most difficult task given to the physician, since the cause is due to improper feeding.

The fundamental principles for treatment are, first, individualization: find out what this individual infant or child will digest. Be guided by the functional power of the stomach and intestines to digest and absorb food of a given strength and quantity, and not according to the age of the child.

Second, place the child under the best hygienic surroundings, where the maximum of light and fresh air is to be secured.

Third, keep the child quiet, removed from all sources of noise and from the well-meant, but at times troublesome, solicitations of relatives and friends. Treat the case as a sick child before necessity compels you to do so.

Fourth, inspect the clothing of the child, and according to the season of the year clothe properly. Under four years of age always order a light woolen abdominal band. Avoid chilling and wetting of the child.

Fifth, bathe the child properly, and see that the skin performs its functions normally.

Sixth, instruct exactly how much and how often food is to be given.

Seventh, give absolute instructions what strength food to use.

A general routine procedure in simple or severe diarrhea is to clear out thoroughly the alimentary canal; after which allow the function of the stomach and intestines absolute rest for twenty-four to thirty-six hours. Then begin with a very weak strength food and gradually and slowly work back to the normal food for the child. Always inspect personally every stool daily.

In treatment the weightiest problem for our consideration is the matter of food. What forms the child's chief sustenance and in the first year of life its only food, milk, may of itself become a poison and be the sole cause of an illness which rapidly transforms a healthy infant into a delicate one, or causes death. In milk the proteids and the fats are the most likely to produce indigestion, and success in the treatment rests upon a careful study of the digestion of these two ingredients as affecting the diarrhea; this is true of breast-fed infants, but is more strikingly true in artificial feeding. Therefore, after a free purgative has been administered, and twenty-four hours have elapsed, during which time water is given freely, or a little weak broth or wine whey, begin with a mixture of a small percentage of fats and very low proteids, and work up slowly in the strength and quantity of milk, watching the stools for any reappearance of milk indigestion. Two or possibly three feedings of milk during the second period of twenty-four hours suffice. "Make haste slowly" is the best maxim to follow. It is my universal custom to pasteurize all foods in such cases, not only in summer but also in winter, and I have never found a mother who was unwilling to do it when a careful explanation of the reasons for so doing, and how to do it, were given. The milk mixtures should contain also lime water and barley water; sugar of milk should be used and not cane-sugar. Each case is individualized, yet some general rules may be given concerning frequency of feeding—not oftener

than every three hours, to begin with every four hours.

Concerning increase of strength when the first mixture is digested, use the second mixture every alternate feeding for twenty-four hours, then use stronger food every feeding. Always keep on hand one-half a day's supply of old mixture until it is certain that the new does not disagree with the child. Make no changes in the mixture unless inspection of the stools warrants it.

Reliance on drugs to cure the condition is putting your faith on a shattered reed. In my practice four drugs are all-sufficient to combat the disease, used in the following order: Calomel in small doses at half-hourly intervals until one and a half to two grains are taken. Castor oil in full doses, repeated without any hesitancy during the attack—the only caution is not to allow the stomach to be upset by its use. Bismuth subcarbonate in full doses given most conveniently in the old-time chalk mixture. Opium in the form of paregoric only occasionally when the frequency of the stools or their too watery character forms an indication for checking a little the peristalsis of the bowels.

A few years back rectal irrigation at stated intervals was a routine order in nearly all cases. To-day it is properly used only occasionally, and is of great value. The normal salt solution at a temperature of 90° to 95° F. is the best solution to use, for thereby a large amount of water is absorbed into the blood-vessels.

Preventive measures must rest chiefly on the methods of feeding infants and children, and upon a suitable milk supply. This has been clearly proven in New York City by the great diminution in the mortality from diarrheal diseases in children under five years of age since the Straus depots for modified milk have been in active operation.

The education of the mother by the physician to use modified milk and not to rely on proprietary foods will save many lives. My own practice among the working class each year enables me to convince several mothers that modified milk, properly prepared and regularly given, is the simplest and best way of artificially feeding the baby. Instruct the mothers concerning the dangers of a simple diarrhea, especially during the summer months, and not to delay in sending for their physician.

Of supreme importance is to secure a pure milk, unadulterated with water, and containing no preservatives, and free from pathogenic bacteria.

The scientific study of the ingredients of mother's and cow's milk has at all times interested many physicians. The proper modification of milk has been carefully worked out on a scientific basis by Rotch, Holt, Winters, and others; a careful perusal of their works has been of inestimable value to me, and the results attained from following their advice have widened my experience in treating babies, and positively saved the lives of many children.

THE TREATMENT OF TUBERCULOUS PLEURISY.

SIDNEY MARTIN in the *Lancet* of March 3, 1906, in writing on this topic tells us that in the acute stage, beyond the ordinary measures of rest in bed and good nursing, the main point that will arise for decision is the question of removing the fluid from the chest. There does not appear to be any greater danger in removing the fluid in tuberculous cases than in the non-tuberculous, and, indeed, there may be a definite reason in advising the removal of the fluid owing to the permanent adhesions that are liable to be formed in tuberculous cases. Apart, therefore, from any urgency for paracentesis such as may occur when there is respiratory distress, it is not wise to allow a large quantity of fluid to remain in the chest for too long a time. If the fluid, therefore, is large in quantity and shows no sign of absorption it had better be removed. Cases which run a prolonged course with pyrexia and perhaps no urgent symptoms are best treated by lying in the open air, properly wrapped up and well fed. After the pyrexia has ceased all such patients require a prolonged course of treatment in the open air in order to help the healing of the tuberculous lesion. If this were done more systematically it would perhaps to a great extent prevent a second attack of tuberculosis which so frequently affects the lung tissue, and leads to either a very chronic illness or more immediately to death.

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Leading Articles.

ACID INTOXICATION UNDER ANESTHESIA.

In the issue of the THERAPEUTIC GAZETTE for November, 1905, we called attention in our editorial columns to several papers which dealt with the importance of postanesthesia accident or illness, and gave statistics as to the relative frequency with which such instances follow the use of the drugs which are commonly employed to relieve pain during surgical operations. Amongst others we called attention to the very important paper by Bevan and Favill in regard to acid intoxication after chloroformization. Our attention has once more been called to this state by a valuable communication contributed to the *British Medical Journal* of May 19, 1906, in which Beesley, of Edinburgh, writes upon postanesthetic acetonuria, or the significance of delayed chloroform poisoning, with a consideration of the advantages of ether over chloroform in acute infective conditions. After detailing a very considerable number of cases in which he studied the frequency with which acetonuria was found to be present in excess in the urine after the administration of chloroform, he states that the treatment of the state of acetonuria arising from this cause ought to be along lines closely allied to those which are commonly employed in the treatment of acetonuria in diabetes mellitus. In other words, the physician should direct his efforts to the accelerating and stimulating of the excretions by the administration of sodium bicarbonate until the urine becomes freely alkaline. Indeed, he suggests that the onset of acetonuria may be prevented or mitigated by giving bicarbonate of sodium before the drug is taken by inhalation. In two instances he placed the patient upon 15 grains of sodium bicarbonate three times a day eight days before the operation. The results were excellent. The patient vomited very slightly on recovering consciousness, and did not exhibit at any time any symptoms of poisoning, being able to take food the same evening, and not requiring the postanesthetic attention needed by most patients. As a result of his experience children admitted to the Royal Hospital for Sick Children in Edinburgh when suffering from enlargement of the glands of the neck requiring operation are treated in this way. If the acid intoxication is serious immediate interference is required. The patient should be given a sweat by means of vapor baths, blankets, or hot bottles, and every avenue of entrance should be used for the introduction of sodium bicarbonate. Saline infusions under the skin combined with small quantities of adrenalin should be frequently given. Beesley's paper is of importance not only because it deals with the treatment and prognosis of this condition complicating the postanesthetic state, but also because it aids in explaining a considerable number of cases which are seemingly obscure in their nature and which will become clear in their origin if the urine is carefully examined. The conclusions which Beesley reaches at the close of his paper are of so much interest that we print them below:

1. That two separate conditions should be recognized—acute and chronic acetonuria.

2. That ether and chloroform invariably induce a temporary acute acetonuria

which may be very detrimental even to an apparently healthy organism.

3. That this acute anesthetic acetonuria is accompanied by symptoms of acid intoxication, sometimes ending in death, when the kidneys are unable to cope with the increased formation of acetone by a corresponding capability of excretion.

4. That although ether may produce a greater acetonuria, this is less harmful than that produced by chloroform because ether is less injurious to the cells of the liver and kidneys, and thus does not hinder their power of elimination.

5. That the more plentifully and rapidly excretion is carried on the less serious is the poisoning.

6. That the effects of the poisoning are mitigated by the administration of alkalies, which may also be given with advantage before operation if poisoning be anticipated.

7. That the usual risks of anesthesia are not increased by preëxisting chronic acetonuria.

8. That anesthesia is dangerous with preëxistent acute acetonuria, especially if the anesthetic is chloroform.

9. That a guarded prognosis must always be given when acute acetonuria is present with symptoms of poisoning.

10. That death following the administration of chloroform with symptoms of poisoning may be due to the idiosyncrasy of the patient.

A further communication to this subject entitled "La Mort Tardive par le Chloroforme" appears in *La Presse Médicale* of May 16, 1906, and is quite exhaustive in some respects, discussing the history, etiology, pathological anatomy, diagnosis, prognosis, and treatment, and giving a considerable number of references, most of which are to older literature. It quotes, for example, Casper, who reported death from chloroform in 1850 after an operation was finished, as did also Langenbeck in the same year; Nothnagel doing likewise in 1866. In the paper just quoted Tuffier, Maute, and Auburtin express the belief that the treatment is usually symptomatic and is to be directed against the overcoming of adynamia and cardiac collapse, which is best accomplished by camphorated oil and caffeine, and by the administration of remedies which will cause activity of the kidneys.

The suggestion of Offergeld that these conditions can be to a certain extent prevented or remedied by the inhalation of oxygen does not seem to meet with much favor, and so far as we know the suggestions already named in regard to the administration of bicarbonate of sodium and hypodermoclysis are the best which have been made.

THE OVEREFFECTS OF THE BROMIDES.

A number of years ago we published in the original columns of the THERAPEUTIC GAZETTE a collective investigation which the writer made in regard to the untoward effects produced by the bromides when administered in large doses or when taken by persons who are unusually susceptible to their effects. It will be remembered that this collective investigation did not deal with the eruptions and gastrointestinal disturbances which the bromides sometimes produce, but with the curious nervous disturbances which are at times caused by their constant administration. The cases then considered were those in which the administration of bromides instead of producing a sedative influence resulted in the development of mania or other forms of mental excitement.

Our attention has once more been called to the untoward effects of large doses of bromide by an interesting communication which has been made by Dr. M. Allen Starr, of New York, to the *Monthly Cyclopedia of Practical Medicine*. In the cases reported by him symptoms of mania and mental excitement did not develop, but on the other hand the patients manifested symptoms which caused a diagnosis of paresis to be made. Both patients were fairly healthy men, engaged in active business, who took large doses of the bromides for the relief of nervousness. In the course of about four months of continual medication these patients developed a gradually increasing mental torpor, a progressive failure of memory, an inability to fix the mind upon business transactions, and also left unfinished letters and telegrams. They also developed an unusual irritability of temper, became unsteady in their gait, suffered from general muscular weakness, and their handwriting became tremulous. The voice was thick and knee-jerks were diminished, and they frequently fell asleep

in the daytime, although they were restless and wakeful at night. They also had hallucinations of sight, but both of them asserted that they were perfectly well. It is important to note, however, that in neither of them did there develop delusions of grandeur. It is also interesting to note that in these cases prompt recovery followed the withdrawal of the drug, its elimination by salutary measures and good feeding, and that two years after they still remained permanently well, and manifested no signs of paresis, proving thereby that the symptoms were not due to any organic nervous disease.

These cases emphasize once more the point which we have so frequently insisted upon in these columns, namely: that any drug which is capable of doing good is, if abused, capable of doing harm, even when it is as innocent a remedy as the bromides are usually thought to be.

MASSAGE OF THE HEART IN CHLOROFORM SYNCOPE.

While we are firmly convinced that in a very large number of cases of chloroform accident the chief symptoms are due to vasomotor palsy which causes the patient to bleed to death into his own vessels, we are also assured that this drug is capable of causing acute dilatation of the heart and great feebleness of its muscular fibers, and that not rarely both its auricles and ventricles become surcharged with blood when chloroform is administered. A considerable proportion of cases of chloroform accident can, we believe, be prevented by administering prior to the use of chloroform a hypodermic injection of atropine which will act as a vasomotor stimulant, and this plan of treatment combined with a very cautious administration of the anesthetic will suffice in a goodly proportion of cases. There are, however, instances in which sudden collapse and apparent death come on with extraordinary rapidity, and in which the surgeon feels that he is justified in resorting to most radical measures for the relief of the patient. In instances in which an abdominal section is being performed these measures of relief are not difficult to carry out. More than once we have seen compression of the abdominal aorta by the hand of the operator restore the circulation to an approximately normal state by limiting the distribution of the blood to the upper portions of the body and to the head, and we believe that when the abdomen is already open this form of compression should always be used when the pulse suddenly flags under the influence of an anesthetic. Many men of experience have also strongly urged the employment of cardiac massage, using it in one of two ways. The simplest, and most easily performed, method is to actively knead the chest wall immediately over the heart by means of the fingers and the heel of the hand. Frequent reports have seemed to indicate that either directly or reflexly this method seems to aid the heart in expelling its overcharge of blood and in reëstablishing its function. Even more heroic measures than this, however, have been suggested and actually carried out. A number of operators have gone so far as to actually grasp the heart itself, and by kneading of its walls overcome its distention and stimulate it to renewed endeavor. The writer of this editorial note repeatedly performed this manipulation with success while carrying out a research for the Nizam of Hyderabad in 1892.

We note with interest in this connection that Lanormant, of Paris, has recently studied this subject with care, considering both experimental and clinical observations. He has found altogether twenty-five cases in which direct cardiac massage has been employed in human medicine. In addition to cases which have cardiac failure when under the influence of an anesthetic, it has been employed in a case of pulmonary edema, in a case of tracheal asphyxia, in a case of hanging, and in a case of sudden arrest of the heart during suture of its wall after a bullet wound. The operator when resorting to this plan either makes an opening in the costosternal area, and so grasps the heart, or he incises the abdominal wall and reaches the heart through the diaphragm, either leaving the diaphragm intact or even dividing it. It is interesting to note that of the twenty-five cases collected by Lanormant, four patients were restored to life. He believes that the procedure is of greater

value than these statistics indicate, for in four other cases the action of the heart was temporarily restored, although it eventually failed. In seventeen cases, however, this form of direct cardiac massage failed to restore the action of the heart even temporarily. These facts, however, do not strongly militate against the employment of this plan. Naturally, it would not be attempted until the condition was most desperate, and probably in some instances the patient was actually dead when it was employed. That actual handling of the heart will stimulate it to renewed effort is well known to workers in the physiological laboratory, and is a fact which a heroic surgeon certainly should not forget.

Lanormant advises, if this method is attempted, that the incision should be made through the abdominal wall, and that the hand should grasp the heart through the diaphragm, which should not be incised, in his opinion.

TREATMENT OF TUBERCULOUS PERITONITIS.

It will be remembered that within a few years laparotomy was widely exploited in the profession as the method *per se* of curing tuberculous peritonitis, and that whether the operation took the form of simple incision with evacuation of the ascitic fluid, incision with the introduction of mild antiseptic solutions, or was combined with more radical surgical procedures, the percentage of cures was so large as to lead to the hope that this affection represented one of the least serious forms of tubercular localization. With the lapse of time and after an extended clinical trial upon the part of many surgeons the operation was shown to have been in many cases so entirely futile that it is now perhaps too generally believed that the number of cures resulting from surgical intervention is no greater than that which may be accomplished by more conservative methods.

Guthrie (*Practitioner,* June, 1906), writing on this subject, says no explanation of the good results which unquestionably do follow laparotomy has yet been put forward, but suggests that on the removal of the fluid contained in the belly, serum having antibacterial properties is poured out, and this arrests the morbid process.

König's statistics are quoted to the effect that in 131 cases, of which 10 per cent were over twenty years of age, beneficial results followed incision and evacuation of the ascitic fluid in 107, and 84 of these were completely cured. Aldibert obtained 45 recoveries in 52 operations on children, and 9 of these were well a year afterward. Roersch recorded 358 cases similarly treated, and notes that 70 per cent completely recovered; and Watson Cheyne in his own experience finds that 50 per cent were cured.

Hawkins from an examination of 100 cases concluded that there is little difference in mortality whether operation is resorted to or not, while Guthrie himself from a study of 41 cases admitted to St. Thomas's Hospital notes a larger percentage of cure in the cases treated symptomatically by drugs than in the cases treated by laparotomy. Sutherland's results corroborate this finding.

Marsh and D'Arcy Power strongly advise an immediate evacuation of all fluid accumulation whether it be serous or purulent, general or encysted. As opposed to this Sill is quoted to the effect that "there can be little doubt that the exaggerated value which has been put upon laparotomy as a treatment for uncomplicated tubercular peritonitis is due largely to the fact that the tendency of this disease to spontaneous recovery under favorable hygienic conditions has been ignored."

Guthrie lays it down as a working rule that every case of tuberculous peritonitis accompanied by effusion of fluid should be treated by such general and special medicinal and hygienic measures as have been indicated; that after a period of from three to seven weeks, if marked improvement does not take place resort should be had to surgical treatment. As a rule the more chronic the disease the less kindly it yields to medical measures. Guthrie holds that nothing is gained by the introduction of such substances as iodoform into the peritoneal cavity or the establishment of drainage, the latter being objectionable because of the tendency to form tuberculous sinuses. In all ordinary ascitic cases an incision two or three inches long should be made and the fluid evacuated as quickly as possible without

undue handling of the abdominal contents. Excessive adhesions should be broken down and divided between ligatures, and localized collections of fluid, if they can be reached, should be evacuated. In early cases, especially in those who are robust, breaking-down lymph glands or Fallopian tubes should be removed.

Tuberculosis of the lungs is not a bar to operation—indeed, patients improve after evacuation of the abdominal contents. In those hyperacute cases characterized by an onset which resembles septic peritonitis or internal strangulation, and in which the accumulated fluid is usually hemorrhagic or purulent, immediate operation by large incision followed by washing out with normal saline solution and efficient drainage is indicated.

The fibrous or adhesive forms of the disease are, as a rule, not bettered by surgical intervention. It should only be attempted when there is steady progression in spite of hygienic treatment. The caseous or ulcerous forms are so apt to be followed by fecal fistula as a result of operation that this procedure is rarely adopted.

It seems not unlikely that in the reaction against the too general application of laparotomy to cases of tuberculous peritonitis, particularly to such as experience has shown are not benefited by this procedure, the best interests of many of these patients have been jeopardized. There seems good reason to believe that abdominal incision and evacuation of tuberculous fluid is in a fair proportion of cases followed by relief or even cure after medical and hygienic means have been quite powerless to bring this about, though it can scarcely be doubted that many of the reported cases of cure following surgical intervention would have recovered by more conservative treatment. It is, however, equally beyond doubt that many other cases thus cured would not have recovered had operation not been performed. Guthrie's advice to first give the patient the benefit of a carefully regulated dietetic, medicinal, and hygienic treatment, and to operate when after a reasonable period of time there is no betterment, and before the disease has so weakened the patient as to render surgical intervention dangerous, seems well worth following.

GOITRE EXTIRPATION.

Kocher's report of the completion of his third thousand goitre extirpation and his summary of results in this series is of more than passing interest to the profession.

This series began in November, 1900, and terminated in August, 1905. It includes cases of malignant disease, of acute inflammation, of Basedow's disease, and of ordinary goitre, and is attended with a mortality of .7 per cent. There were 36 malignant cases, with 3 deaths; 8 cases of strumitis, none of which died; 52 cases of Basedow's disease with one death, due to secondary bleeding, for the relief of which the wound was reopened, the second operation being followed by tachycardia and heart failure.

In 904 operations for ordinary goitre there were three deaths, all of them complicated cases. One of these deaths was due to secondary bleeding, in a case of congenital thyreopriva. Because of the pressure upon the trachea the thyroid required removal. Such patients are peculiarly likely to bleed. The second patient died of pneumonia after complete healing of the neck wound. In addition to bronchitis this patient had myocarditis and dilatation of the heart and atrophy of both kidneys. The third fatality occurred in a patient who from infancy suffered from double-sided paralysis of the recurrent laryngeal and a high grade of myocarditis.

His experience leads Kocher to conclude that goitre operation is one free from danger, providing the heart is sound, even when the tumor is placed deeply, has reached huge size, and is found in old people. In the thousand cases there was not one instance of infection sufficiently severe to threaten the life of the patient. Of 293 benign goitres treated in the private hospital there were seven instances of local infection, though the average stay of the patient in the hospital was but ten days.

The simplest form of cleanliness is employed. The surgeon and his patient are washed with hot water and soap, then with 75-per-cent alcohol. No antiseptic solution is brought near the open wound. Silk is used as the ligature material. It is disinfected by boiling in sublimate so-

lution. Minute care is taken of hemostasis, and drainage is also employed. In twenty-four hours the drainage-tube is removed.

Crippling of the heart is regarded as the most ominous accompanying organic disease. Patients contemplating operation should be subject to the most careful and searching examination in regard to the efficiency of the heart; also, blood-pressure should be studied. When the patient can bear pain general anesthesia is omitted, not only because of its depressant effect upon blood-pressure but because in its use an important guide in regard to the recurrent laryngeal is lost.

Kocher, while strongly advising preoperative treatment of cases characterized by arrhythmia, dilatation, low tension, and deficient blood-pressure, urges against postponing operation so long that what he calls the "goitre heart" is developed, and particularly does he caution against too prolonged and vigorous use of iodine preparations and thyroid. He calls attention to the fact that dyspnea is generally recognized as an indication for immediate operation, but that this is no more dangerous than the heart condition which results from this dyspnea and the misuse of iodides. He holds that the heart condition in Basedow's disease is the one of greatest moment, and that if this can be prevented from developing the prognosis is extremely good. Early operation is the best means of preserving the heart.

The last conception which should exist in the surgeon's mind is that operation should be the final resort in exophthalmic goitre; rather it should be the means of treatment first to be considered. Indeed, Kocher urges against operation when the goitre heart is fully developed.

Early excision is strongly urged in cancer, since a diagnosis cannot be postulated at the time it is most serviceable to the patient. The practice should be followed of operating at once on every rapidly growing goitre; thus these cases may be taken at the only time there is any prospect of ultimate cure.

It should not be forgotten that even after partial strumectomy, hypothyreosis may develop.

It is somewhat surprising in the light of Kocher's repeated publications upon his results in goitre, and results almost as favorable, though based on a smaller experience, reported by a score of others, that the extirpation of goitre should be regarded by the profession at large as an especially dangerous operation. In simple cases it is, in the hands of a practical surgeon, completed with a risk to life no greater than that, for instance, which now attends the operation of appendectomy. If simple cases were operated upon early it is certain that malignant cases would disappear, and probably that many instances of Basedow's disease would be prevented. The almost uniform failure of medical treatment, and the fact that injections make the operation difficult and are often followed by sinuses, should cause goitres to be referred to the surgeon before they have attained such large size as to make their removal difficult, or have produced pressure symptoms or a toxemia so severe as to profoundly alter the vitality of the heart muscle.

Reports on Therapeutic Progress

THE PHARMACOLOGICAL ACTION OF DIGITALIS, STROPHANTHUS, AND SQUILL.

Dr. G. S. HAYNES has contributed to the February number of the *Bio-chemical Journal* further results of an investigation of the pharmacological action of this group of cardiac tonics. The specific action of these drugs on the heart can be divided into two stages: a first stage characterized by stimulation of the cardiac muscle and of the vagal nerve endings; and a second in which the tonus is much increased and the rate accelerated by the extension of the action on the muscle to the excitomotor area of the heart. Squill differs in several respects from digitalis and strophanthus in its action on the heart. Thus in therapeutic doses it increases the force of contraction to a considerably greater extent than the last-named drugs; both systole and diastole are more complete and prolonged; in so far as the peripheral vagal mechanism is concerned squill slows the heart-beat more than digitalis, and, considering its relative toxicity, more than strophanthus; lastly, squill produces more vasoconstriction of the coronary vessels than does either digitalis or strophanthus.

Dr. Haynes finds that digitalis is less efficient as a cardiac stimulant than squill in that it has not the same effect in increasing the energy of contraction of the heart, even when a relatively higher dose is employed. Digitalis has less peripheral effect on the vagal mechanism than squill. Strophanthus occupies a position considerably below squill and slightly below digitalis in respect of its effect on the force of the heart-beat. Its tincture slows the heart more than does either of the two tinctures in equal doses. Strophanthus differs from these drugs in having practically no action on the coronary vessels. It is a dangerous drug, being very liable to cause sudden death of the heart without previous excitation of the excito-motor area. To mucous membranes digitalis is more irritating than squill, while strophanthus has very little irritant action.

Dr. Haynes concludes that in any case in which it is desirable to raise the blood-pressure and to stimulate the heart squill should be used in preference to digitalis and strophanthus, as it acts more quickly and more effectively than either, and does not cause as much gastrointestinal derangement as does digitalis. Every precaution that is observed when digitalis is properly administered should also be observed in the use of squill. It should not be given for many days without intermission, and a close scrutiny should be kept on the pulse-rate, which should not fall below 60, and on the amount of urine passed, a rapid diminution of which indicates that the administration of the drug should be stopped.—*British Medical Journal,* April 2, 1906.

POINTS OF INTEREST IN MAJOR ANESTHESIA.

DAWBARN states in the *Journal of the American Medical Association* of April 21, 1906, that a point to be mentioned is a means of preventing trouble from chloroform when this is used at night in presence of a naked flame in the room. Experience has shown that before the end of a long operation the surgeon and his assistants will be coughing in consequence of the chloroform becoming decomposed and giving off nascent chlorine. About fifteen years ago—perhaps more—it occurred to the author to try hanging handkerchiefs dipped in ammonia not far from the lamp or gas-jets. The resultant chemical affinity at once produces ammonium chloride and prevents the cause of the coughing. Recently he mentioned this to Dr. Thomas L. Bennett, perhaps the best known of the men doing exclusively anesthesia work here, who said he had never before heard of it. As the author has not found it mentioned in a rather hasty review of text-books, he assumes that at least this plan ought to be more widely known.

Another suggestion of this paper is far from original, but how forgotten it is in practice! The author refers here to giving the anesthetic during natural sleep. In all possible instances of major operating during the earliest years let us select an hour which is regularly that of the child's daily sleep, and, entering the darkened room noiselessly, let us anesthetize so cautiously and gradually—using the chloroform mask held far from the face, employing the drop method, and being in no hurry—that the little sleeper only awakens when the operation is ended!

It makes an astonishing difference in the amount of chloroform required whether this safest of plans (and most neglected) is used, or whether instead the frightened child is awake, struggling, and screaming. Also, be it remembered, it earns the mother's gratitude.

Although easy of accomplishment with chloroform and in childhood, during natural sleep, such anesthesia, using ether, is far more difficult, almost impossible indeed, and rarely can be done on adults at all.

The last of the three small points the author wishes to bring out—if, indeed, anything is small that makes at all for the patient's comfort or safety—is in reference to the advice which, without exception, one sees included in the instructions to the young anesthetist, namely, always to remove from the patient's mouth any plate containing artificial teeth.

In the opinion of the author there are exceptions to this, and the physician should be entitled to use his judgment. Obviously the plate should be removed when it is so small that, if dislodged, it might prove dangerous either by being swallowed or lodged in the gullet. In many instances, however, the patient is

wearing a complete or nearly complete set or sets and possesses only an ordinary size of pharynx. In such cases swallowing or choking on the plate is out of the question; and when it is taken out the cheeks and lips so fall in as to encroach, in some patients, to a serious degree on the breathing space within the mouth. This is worth remembering, especially when there chances to be much nasal obstruction, which is far from rare.

HEMATEMESIS.

The *Clinical Journal* of March 14, 1906, contains an article by HERRINGHAM on this subject. In discussing the treatment of hematemesis the author does not favor operation for hematemesis alone, except in the very rarest cases. And if we do not operate, how else shall we treat the patient? he asks. Such cases he believes in treating in the first place by rest of the whole body. Rest—that is to say, making the patient lie in bed and keep there—is the best of all treatments for hemorrhage anywhere. Next there should be rest of the part which is bleeding. Those who have been in his wards know that he does this by depriving the patient of food by the mouth for as long as they can bear it, the period varying up to a fortnight. Some, of course, cannot stand it for so long as that. But during that time nothing whatever is allowed them by the mouth, unless it be sips of water, a teaspoonful at a time. These people are fed entirely by means of nutrient enemata, generally one every three hours, the enema consisting of meat, milk, and eggs, which is usually pancreatized and alkalized. The thirst is very well relieved by injections of a pint of saline fluid once or twice in the day. If we are feeding patients by nutrient enemata, we have to wash out the rectum thoroughly with a large soap-and-water enema at least once a day, otherwise there will be a mass of decomposing stuff in the rectum which will not only prevent absorption of other food, but cannot possibly do the patient any good. After a fortnight give these patients whey, and then whey mixed with milk, gradually reducing the quantity of whey, until eventually pure milk is given, and then the ordinary milk diet of the hospital.

For severe hematemesis the immediate treatment is in the first place the giving of ice to suck, secondly the injection of morphine, which has a wonderful effect, and thirdly the administration by the mouth of adrenalin. There is no doubt that this is a valuable styptic in cases of bleeding of the stomach. It has been said, in objection to adrenalin, that by increasing the general blood-pressure throughout the body it might tend to produce a recurrence of the hematemesis, pressure being brought to bear upon the bleeding point. But the observations of Dr. Hadfield made in the author's wards in cases of administration of adrenalin proved fairly conclusively that no such general rise of blood-pressure could be traced. It may happen experimentally in animals, but it does not appear to happen in man, and there is no danger of recurrence of hematemesis from this cause.

For the pain which generally accompanies gastric inflammation there is not a drug in the whole Pharmacopœia which is to be compared with bismuth. People give it in fifteen-grain doses generally, but sometimes very large doses are administered. In the smaller doses in which the author gives it, it has had a most wonderful effect in relieving pain; and it is well to remember in employing bismuth, first of all, that it colors the stools a dark brown, which may be mistaken for melena, and in the second place that physicians are widely at variance as to how the drug acts. Some say that it acts simply mechanically, making a sort of covering over the sore place. On the other hand, some say it acts physiologically, as an astringent.

DIET IN GOUT, RHEUMATISM, AND ALLIED CONDITIONS.

LUFF states his views in regard to this important subject in the *Practitioner* for April, 1906. As regards the question of meat, it must be remembered on the one hand that animal foods constitute to the majority of people the most attractive and appetizing forms of diet, and are therefore likely to be taken in excess; hence the necessity for limiting the amount to be taken. But, on the other hand, it must be borne in mind that it is most desirable to increase the combustion and the oxidative powers within the tissues. In the author's opinion it is abso-

lutely erroneous to exclude from the dietary of the gouty such articles as meat, fish, and tea because they are assumed to contain uric acid.

No class of foodstuffs gives so great an amount of energy and produces so much heat as animal food, and no class is more easily digested by the majority of gouty people. On the whole it may be stated that animal food, such as fish, chicken, game, and meat, is best suited to the majority of gouty cases, whilst foods of the farinaceous class are most likely to disagree. White meats, such as chicken and fish, are more digestible than red meats. The quantity of meat, and especially of red meat, must be restricted in those cases in which the kidneys are imperfectly performing their elementary functions, as evidenced by a pale urine, of low specific gravity, and deficient in urea and purin bases.

A fair proportion of vegetable food should be taken with the meals each day. The choice of vegetables will depend upon the digestive capacity of the patient; but, excepting the potato, as a rule those vegetables that grow above ground are preferable to root vegetables. At the same time it must be borne in mind that with certain patients some of these vegetables may tend to produce some form of dyspepsia, and the writer strongly urges that in the dieting of the gouty no hard-and-fast rules can be laid down, but the idiosyncrasy of each patient to various articles of diet must be made the subject of careful observation and study. Due consideration should also be given to the patient's experience of what articles of diet disagree with him.

The diet of gouty patients should be simple—that is, the meals should not be made up of too many articles. Simplicity of food means facility of digestion. Moderation in both eating and drinking is perhaps one of the most essential points to insist on in the dietary of the gouty. Certainly meat, even red meat, should not be excluded from the diet.

Those articles of diet that are known in the individual to favor intestinal fermentation and putrefaction should certainly be avoided, and it may be taken, the writer thinks, as a general rule that a sense of discomfort after a meal indicates that some article or articles of food have been taken which are not beneficial to the individual in his present condition. If the gouty symptoms are due to overproduction of toxic material from faulty intestinal and hepatic metabolism, and if at the same time the kidneys are sound, then a diet which mainly consists of animal food is indicated; and in extreme cases of this class even the so-called "Salisbury diet" may be useful. If, on the other hand, the gouty symptoms are due to defective elimination on account of diseased kidneys, then a diet which is more vegetarian will be best.

The value of the so-called "Salisbury diet" consists in the small amount of energy necessary for the digestion of so simple a diet, and in the fact that it contains little which can set up intestinal fermentation or putrefaction. On the other hand, a strictly vegetarian diet requires more digestive energy than a purely animal one, and a much larger quantity of vegetable food must be taken to produce an equal nutritive effect. If, during the treatment of gout, an attack of gouty dyspepsia should at any time intervene, then a milk diet should be employed until the dyspeptic symptoms have abated.

Starchy articles of food should be especially limited in amount in those gouty individuals who are subject to gastric hyperacidity (hyperchlorhydria). When intestinal fermentation and putrefaction occur, as evidenced by a sense of discomfort after a meal, the author attaches great importance to the reduction of the starchy articles of food, but not to the total exclusion of, what he believes to be comparatively harmless, the potato. Undoubtedly, amongst those gouty patients who suffer from an inability to digest starchy articles of diet—in other words, who suffer from amylaceous dyspepsia—a reduction for the time in the amount of starchy foods taken, including potatoes, is desirable; but the recognition of the existence of amylaceous dyspepsia is a fairly easy matter, and when present it can be suitably treated. Certainly those who are gouty and fat should be very sparing in the use of potatoes, as of other carbohydrate forms of food. The author, however, protests against the too general exclusion from the food of the gouty of so common and useful an article of diet as the potato.

The best form in which potatoes can

be taken by the gouty is the crisp form, which requires thorough mastication and insalivation. Boiled new potatoes should be absolutely interdicted to the gouty. Equally wrong, in the author's opinion, is the total exclusion of sugar from the dietary of all gouty individuals. Undoubtedly in certain individuals sugar may do harm, as in the cases of gouty persons who are fat, or who suffer from glycosuria, or who are prone to attacks of eczema, and in such it should be cut off; but that is no reason for the exclusion of it from the dietary of all gouty patients, especially those who are at the same time gouty and thin. It is the author's experience that many gouty individuals take sugar with absolute impunity. Some gouty subjects digest very badly all starchy articles of diet, and in such fats may well take the place of starches. Fat bacon, properly cooked, is generally well digested by gouty individuals. Subjects who are both gouty and fat should avoid sugar, but sugar may be taken with advantage by those who are gouty and thin, and such subjects may also take in moderation marmalade and wholesome jams. Bread may advantageously be given as crisp toast, or in the form of rusks, or in the "zwieback," or twice-baked form, as in these conditions it requires thorough mastication and insalivation.

Certain articles of diet should be avoided by the gouty, such as rich meat-soups—ox-tail, turtle, mock turtle, kidney, mulligatawny, hare, giblet.

Salmon, mackerel, eels, lobster, crab, mussel, salted fish, smoked fish, preserved fish, and tinned fish are also inadvisable, as are duck, goose, pigeon, and high game, and meats cooked a second time. Hare, venison, pork, lean ham, sweetbreads, liver, kidney, salted, corned, or cured meats, pickled meats, preserved and potted meats, sausages, all articles of food pickled in vinegar, all highly seasoned dishes and rich sauces, are also baneful, as are tomatoes, beet-roots, cucumber, rhubarb, mushrooms, fruits, ices, and ice cream.

The following plan gives an indication of the diet suitable for gouty subjects:

Morning: Half a pint to a pint of hot water, flavored with a slice of lemon-peel, should be slowly sipped immediately on rising.

Breakfast: A selection may be made from the following articles of diet, according to the taste of the patient: Porridge and milk, whiting, sole, or plaice, fat bacon, eggs cooked in various ways, dry toast or "zwieback bread" thinly buttered, and tea infused for three minutes and then strained from the leaves. Fat bacon is digestible when grilled, but less so when boiled. Eggs should not be taken hard-boiled.

Lunch and dinner: Soups suitable for the gouty are vegetable purées, and soups made by boiling beef-bones or mutton-bones with vegetables, and subsequently removing the fat, which separates on cooling. These soups should not be thickened with farinaceous substances.

The varieties of fish most suitable to the gouty are whiting, sole, turbot, plaice, smelt, flounder, gray mullet, and fresh haddock.

The birds that are admissible as articles of diet are chicken, pheasant, turkey, and game (not high).

Butcher's meat—mutton, lamb, and beef—should be taken at only one meal in the day, and then in moderate quantity. Two vegetables may be taken at both lunch and dinner. Any of the ordinary vegetables may be taken, except those previously mentioned as best avoided; but those that are most likely to prove beneficial to gouty subjects are spinach, Brussels sprouts, French beans, winter cabbage, Savoy cabbage, turnip-tops, turnips, and celery. Potatoes may also be taken in moderate quantities. Stewed fruits, or baked apples or pears, may be taken every day at one meal.

Green vegetables as salads may be taken, provided very oily dressings are avoided. A simple savory may, if desired, be taken at the end of dinner, or a small quantity of cheese, if well masticated, and if free from the fungus or mold.

Night: Half a pint to a pint of hot water, flavored with a slice of lemon-peel, should be slowly sipped before retiring to bed.

With regard to persons who are disposed to gout, but are not actually suffering from it, the usual mixed diet may be taken, but they should limit the starchy articles of food, and should avoid all rich sweets, rice, tapioca, and sago. Thin and

ill-nourished subjects require modifications in their diet as compared with those who are stout, while those who take plenty of exercise can take food forbidden to the indolent. Individuals who especially benefit by a reduction of diet, both as regards quantity and quality, are those overfed people who are past middle life.

SCOPOLAMINE-MORPHINE ANESTHESIA.

In the *Detroit Medical Journal* for March, 1906, R. R. SMITH reports his results from the use of this method in thirty cases. In concluding his paper he states that the advantages and disadvantages of scopolamine-morphine anesthesia may be summed up as follows:

Advantages.—First, mental repose, tiding the patient through a trying experience in being taken to the operating-room and the giving of the anesthetic. This is especially valuable with nervous patients.

Second, a more rapidly induced anesthesia without retching or restlessness.

Third, preparation of the patient without chloroform, allowing the same to be done without hurry and the saving of considerable time that the patient is under anesthesia.

Fourth, the small amount of chloroform or ether necessary, with the consequent diminution of the dangers that follow prolonged or excessive use of these two drugs.

Fifth, no mucus to impede respiration and irritate the stomach.

Sixth, no vomiting or retching on the table or during the period following operation while the patient is still unconscious.

Seventh, lessening of nausea and vomiting.

Disadvantages.—First, limited experience in regard to the danger, compelling us to administer it only in well-selected cases.

Second, uncertainty of its action as regards the amount of narcosis produced.

Third, the trouble in being obliged to keep constantly a fresh solution on hand, and the care necessary to see that the drug is accurately measured. Much of this difficulty will undoubtedly be overcome. The author has but one or two nurses whom he allows to give this, and they are always careful to see that a syringe in perfect order is used in order to prevent loss of the solution.

Fourth, increased dryness of throat in a few cases.

Fifth, increased rigidity of abdominal walls in a few cases.

Sixth, increased capillary oozing in a few cases.

(The last three objections are of no moment.)

Suggestions.—1. The scopolamine-morphine mixture in obstetrics has proved to be very satisfactory, and the author refers to Steinbüchel's article on the subject. It is used here in one-third of the dose given above—that is to say, 1-150 grain of scopolamine and 1-6 grain of morphine are given at a time about once in six hours, or oftener if necessary. It is claimed that the pain is much diminished, that there is no increased bleeding and no uterine inertia.

2. The use of scopolamine alone, beginning say four or five hours after operation, might be tried with the idea of still further decreasing the amount of vomiting.

3. To his knowledge, the use of scopolamine with other drugs, say codeine, has not been tried, but one might expect good and perhaps improved results.

4. An article on the administration of ether and chloroform, when preceded by scopolamine-morphine, after an extended experience, would be of value to anesthetists.

THE VALUE OF ALCOHOL IN CARBOLIC ACID POISONING.

This subject has been investigated by CLARKE and BROWN, and their results are reported to the *Journal of the American Medical Association* of March 17, 1906. Their conclusions are as follows:

1. Alcohol has a local antidote effect to carbolic acid burns, due to its solvent action.

2. There is no evidence of chemical antagonism between alcohol and phenol.

3. There is no effect produced by alcohol on carbolic acid poisoning after the latter has been absorbed into the system, as is shown by the intravenous experiments on dogs.

4. Alcohol and phenol placed in the stomach give no different results from phenol alone.

5. Lavage with alcohol is effective when the phenol is in the stomach, but its superiority over lavage with water is not pronounced.

From the clinical aspect it appears that alcohol has a local antagonism to carbolic acid. When the latter is taken in whisky the feeling of discomfort is less marked, and the local eschar is absent or but slightly evident. In cases of poisoning, lavage with alcohol is apparently an effective method of treatment. This is borne out by a comparison of thirteen cases, with a mortality of 15 per cent, with the collection made by Falck in 1868 of forty-six cases in which the acid was taken internally, with thirty-five deaths, a mortality of 65 per cent. On the other hand, the fourteen cases treated at the Lakeside Hospital by lavage prior to the use of alcohol with three deaths, a mortality of 21 per cent, give results so nearly akin to the alcohol cases that it would appear that the lavage was the dominant factor rather than the alcohol. When it is considered that it was only in the early nineties that stomach washing came into general use, and even later that the fear of its use in cases of corrosive poisoning was overcome, it seems probable that the good results in carbolic acid poisoning from the use of alcohol, during the past few years, were due to the lavage and not to any antidotal property of the alcohol.

The authors do not wish to be interpreted as considering that alcohol is of no value in cases of carbolic acid poisoning. *A priori* its solvent action, and a slight tendency in the experiments with phenol in the dog's stomach to an earlier rise in blood-pressure when the stomach is washed with an alcoholic solution than when water is used, point to its value as a means of removing the poison from the stomach. From abundant clinical evidence, both in their own experience and in literature, it would appear to them to be an aid, when properly used, in the saving of life. On the other hand, this same solvent property, and the more marked symptoms of intoxication, when the poison has been taken in whisky, seem to establish a contraindication to the alcohol being used as an antidote and left in the stomach.

The procedure recommended is immediate, abundant lavage with 10-per-cent alcohol, this to be followed by lavage with plain water, and stimulating as indicated. The point to be borne in mind is that alcohol is not effective after the carbolic acid has been absorbed, and to be of value it must be used while the poison is still in the stomach.

The other common methods of treatment of phenol poisoning are now being investigated, and the results will be communicated later.

The fact that three of the five fatal cases reported by the authors of the Lakeside Hospital series died of pneumonia, and one, at least, of a definite bronchopneumonia of the inhalation type, has impressed the authors with the necessity of care in the method of performing lavage in this class of cases. With the patient lying on his back, in a comatose condition, with the gastric contents regurgitating around the outside of the stomach-tube, it is a simple matter for material to enter the larynx and set up an inflammatory process in the lung. To overcome this danger the authors recommend, immediately after the tube is passed, to turn the patient on his side or face, with the head low, thus allowing any fluid in the pharynx to escape through the mouth. Since this method has been used there have been but few pulmonary signs during convalescence.

POISON IVY.

In a letter to the *Journal of the American Medical Association* of March 17, 1906, BALCH reminds us that as a result of the work of Pfaff we know that the irritant substance of *Rhus toxicodendron* and *Rhus venenata* is a fixed oil which is soluble in alcohol and which is precipitated by lead subacetate. The oil is similar to cardol, but is probaly not identical. The use of lead salts in dermatitis resulting from action of the oil is rational, but the precipitated lead compound must be removed from the skin as it is gradually decomposed; the oil is set free and its action continues.

The use of soap and water and a good hand-brush is the simplest method of getting rid of the oil. The action is entirely mechanical and is perfectly efficient. Alcohol dissolves and removes the oil, but successive portions must be allowed to

flow over the affected part, as, after contact, the alcohol may contain sufficient oil to spread the irritation. Ordinary alcohol must be used and not 50-per-cent alcohol, as the latter does not dissolve the oil. The action is purely a solvent one and not one of neutralization.

In every case the above methods of treatment are at once effective; further irritation is stopped and healing of the lesions begins. In some cases when actual sloughing has taken place a week or two may be necessary for complete healing, but ordinarily two or three days' time is sufficient. The use of ointments or fatty substances is both theoretically and clinically wrong, as such substances serve only to spread the oil.

It should be remembered that the clothing may have been in contact with the plants, and that oil may be transferred from it to the skin and the irritation continued in this way. The writer has been poisoned by handling shoes worn while collecting the plants a year previously. Pollen from the flowers contains sufficient oil to give rise to a dermatitis in unusually susceptible persons.

A DEATH UNDER CHLORIDE OF ETHYL IN A DENTIST'S CHAIR.

Chloride of ethyl, although employed successfully as long ago as in 1848, has been only within the last few years advocated as a general anesthetic. The ease and rapidity with which anesthesia can be obtained by its use and the portability of chloride of ethyl have commended it to many. At the present time there is no doubt that this agent is being given daily and by a large number of persons. It is equally certain that in the hands of many administrators chloride of ethyl is capable of proving itself a dangerous drug. That this danger has not been fully realized is shown by the fact that others than medical men have undertaken the responsible duty incurred in giving any anesthetic, induced we have no doubt by the unfounded belief that in using chloride of ethyl they were employing an agent devoid of danger and belonging to another category than that in which chloroform and ether are placed. The death which is recorded, and which is the ninth published fatality, although there is reason to believe this list is unhappily incomplete, should give pause to those who have unduly extolled the safety of chloride of ethyl.

Dr. W. J. McCardie, who was one of the first to adopt chloride of ethyl as a general anesthetic in England, and who has enjoyed a large experience of cases devoid of all serious complications, gave in March of last year an admirable account of this drug in a paper read before the Society of Anesthetists. While he recognized its unquestionable merits, when properly used, he warned against overconfidence and pointed out that its death-rate was probably 1 in 10,000, and this fact placed chloride of ethyl far below nitrous oxide and also below ether in the matter of safety. The truth of Dr. McCardie's remarks is illustrated by the unhappy death of the Reverend W. H. Eley, the late rector of Deene Wansford, who died in a dentist's chair on February 20. It appears that this gentleman, aged sixty-seven years, went to have four teeth extracted, and chloride of ethyl was administered to him by a medical man, the brother of the dentist. It is said that an average quantity of chloride of ethyl was given—five cubic centimeters, it is believed—but the report fails to mention what method was employed, whether or not exclusion of air was practiced. The anesthetist considered nitrous oxide and oxygen inappropriate as not giving the operator time for his work, but one cannot help thinking that for a patient who was nearly seventy years of age the selection was an unfortunate one. What posture the Reverend Mr. Eley was in we are not told; presumably the usual one which is adopted in dental practice, and one which is not, perhaps, ideal for giving chloride of ethyl to the aged. The fourth tooth had been drawn, when the patient became very pale, and died almost immediately. What measures were adopted was not told, but no doubt all was done which could be; nor does it seem probable that any would have availed.

Deaths have occurred from heart failure following the use of chloride of ethyl, and a considerable number of cases of syncope which did not terminate fatally have been recorded both in England and abroad. As already mentioned, nine deaths under chloride of ethyl have taken place and have been carefully recorded.

The first was in the practice of M. Lothiesen, a Swiss dentist. The patient was a powerfully-built man of alcoholic habits. Respiratory spasm occurred, and death was due to a fatty heart. The second death was that of a child, aged one year, with stenosis of the air-passages due to diphtheria. The third patient suffered from strangulated hernia and died as a result of violent vomiting of a large amount of fluid. In the fourth death the air-passages were pressed upon by a growth. In this case fatty degeneration of the heart existed. Abdominal distention interfering with respiration appears to have led directly or indirectly to the fatal result in the fifth case, while in the sixth edema of the faucial pillars and rigidity of the jaws, which seem to have caused delay in opening the mouth to facilitate respiration, determined the death. The next case was one in which the dentist gave chloride of ethyl to a strong, healthy man single-handed. The death seems to have been due to asphyxia, unrelieved by the performance of tracheotomy. Syncope in a young woman, aged eighteen years, after inhaling five cubic centimeters of ethyl chloride caused the eighth death. It is hardly within our limits to tabulate the "serious cases" which have occurred, very many of which were syncopal in character.

Prof. H. C. Wood, who investigated the action of this agent some years ago, gave it as his opinion that chloride of ethyl exerted a very strongly depressant action upon the heart, and the experience of recent years seems to confirm this view. As an anesthetic for children and for brief operations chloride of ethyl is justly extolled, but in dental surgery, unless cogent reasons exist for its selection instead of nitrous oxide gas, there seems little to recommend it as a routine anesthetic. Certainly, after the death now recorded, there is every reason to avoid its use for the aged as well as for those whose respiration is in any way embarrassed. We feel constrained to point out that, although for certain cases chloride of ethyl is a valuable agent in the hands of experienced medical practitioners, it is a serious menace to the public when given by persons untrained in medicine and surgery. Such persons are not familiar with even the commonest dangers of anesthetics, and are quite unable to deal with those graver perils which can only be warded off by the prompt performance of such operations as laryngotomy and tracheotomy.—*Lancet*, March 3, 1906.

SPASTIC CONSTIPATION.

ROBERTS writes on this subject in the *Brooklyn Medical Journal* for March, 1906. He believes the hydrotherapeutic measures so valuable to arouse the sluggish bowel to action are distinctly contraindicated in the spastic conditions of the intestine. Instead, then, of the cold abdominal douche and friction baths, we use the warm sitz baths, warm douche under low pressure, or some form of warm application to the abdomen. This procedure may readily be carried out in the patient's house at night, while the ordinary occupation is pursued during the day. Several layers of flannel or spongiopiline are soaked in hot water, and after the excess has been removed the application is made while still hot, and retained without changing throughout the night. Massage is certainly contraindicated.

All cathartic remedies must be discarded, as none can cure the condition, and in fact none can aid in the temporary alleviation. The intestine has an overplus of contractile force. What is desired is rather sedation and proper regulation. These objections do not apply to the use of clysters of oil, which are, no doubt, of great value in the atonic variety as well. Since the publication of the investigations of Fleiner we have had many contributions referring to the value of the oils, particularly olive oil, in the form of clysters, and also by mouth. In large doses the oil is not well borne by mouth, and in spastic constipation we desire the action entirely on the lower bowel. It is, therefore, preferable to administer it by rectum. The value of the oil so used is dependent not only on its physical properties, softening and dissolving the feces, coating and protecting the mucous membrane, and diminishing the absorption of water, but also on its chemical action. The latter is a result of the breaking down of the oil under the action of the bile and pancreatic ferments still remaining active in the cecum. Through these digestive juices the normal fatty acids

and soaps are generated, and exert a mild chemical evacuating action.

The choice of the oil depends largely on the means of the patient. Pure olive oil is costly and difficult to obtain, while the poorer qualities are frequently irritating. In any case, where burning sensations or severe peristaltic unrest follow the use of oil, the difficulty should first be referred to a poor quality of the oil. Poppy oil, or the oil of sesame, is much less expensive and is about as satisfactory.

The best time for the use of these clysters is on retiring for the night. In this way it is possible to have them retained twelve or more hours. For the first few times it is best to have a pad applied to the perineum, as some of the oil is apt to be passed with any expelled gas, to the great discomfort of the patient. The amount ordered depends on the site of the spastic contraction. When it is desired to reach an affected cecum, it is necessary to use from twelve to sixteen ounces. If only the sigmoid need be reached, one begins with five to ten ounces. In children even less may be used. While it is convenient to have a special olivary-tipped hard-rubber oil nozzle, with large bore, the ordinary rectal tube may be used. The simplest procedure is to have a large funnel, with hook attachment, suspended by the bedside, the tube fitted with a good pinchcock. In this way the patient is able to take the injection without assistance. When it is desired to have the injection pass to the higher portions of the bowel, the hips are elevated on a pillow, or the patient assumes the knee-chest position. In either case the hips should remain elevated for five minutes after all the oil has passed out of the tube. Irritation, and consequent expulsion of the oil, is less apt to occur if it is warmed before use to about 99° F. For children we make use of a hard-rubber syringe with a suitable end-piece, rather than the slower funnel method of injection.

These injections are taken daily for a period of a week, and the effect is estimated by the changes in the stools and palpation of the colon. The oil does not have an immediate evacuating action, and occasionally it may be necessary to move the bowels for the first few days with an ordinary soapsuds enema. The frequency of the injections is diminished, until, after a period of two to four weeks, they may be discontinued.

In addition to the oils, or without them, we may use hyoscyamus or belladonna in suppositories. When the oil treatment is not being used it is desirable to make the amount of drug in each suppository small, and give several for their content of fat. As a further antispasmodic and aid to the nervous condition, we may use some form of bromide, with or without chloral.

It may be necessary to dilate the anal sphincter forcibly under gas or ether, or we may obtain a good result with the graduated hard-rubber bougies.

DEPLETION IN HEART DISEASE.

SHATTUCK states in the *Boston Medical and Surgical Journal* of May 17, 1906, his views as to this matter. He thinks that dropsy, indicating an overtaxed right ventricle, and a surplus of blood on the venous side of the heart, requires such measures as tend mechanically to ease the right ventricle. These come under the broad term "depletion." Of these the most rapid and direct is the abstraction of blood, either by venesection or leeching or wet cups. There are cases in which bloodletting, and that alone, can turn the scale. No one who has seen it can forget the effect—the gain in color and in breathing power with prompt increase in the urine and corresponding decrease in the dropsy—which may follow the abstraction of half a pint to a quart of blood. It may be wise to take more; but the apparent disproportion between the amount of blood taken and the relief given is surprising.

If leeches are used the hepatic region is a convenient place, and it is usually well to increase the bleeding by a poultice over the bites.

Next to bleeding comes purging, and, outside of a hospital, usually preferable if there is time. Copious watery discharges are what is needed, and it has seemed usually worth while to explain to the patient that the drain does not weaken him save in so far as the necessary exertion may be tiring. The freedom of the purgation should, in the main, be proportional to the degree of dropsy.

The serum drained from the blood through the bowel is, of course, promptly replaced from the tissues. One is far more apt to purge too little than too much. The choice of the agent is of less consequence than the production of the effect desired.

An ounce or two of Epsom salts in saturated black coffee is often serviceable if the stomach will stand it. In some cases compound jalap powder, elaterium, or croton oil is preferable.

Sweating may help in getting rid of the dropsy. It is best carried out in a cabinet, the patient sitting up, as he cannot ordinarily lie down flat or long enough for the purpose.

The serous cavities can be tapped, often with great advantage, if they contain fluid in notable amount and other measures are not promptly efficient.

If edema of the legs be hard and brawny, the author has found Southey's tubes helpful. A thoroughly sterilized aspirator needle or trocar of fair caliber can be thrust an inch or more upward into the subcutaneous tissue of the outer aspect of each lower leg or of the thigh, the skin having been previously carefully cleaned. The needle should then be packed around with sterile cotton or gauze in order to keep the skin as dry as is possible, and should be connected by rubber tubes with a bottle hung under the bed. The writer has thus drawn off 144 ounces of serum in twenty-four hours from one needle in each leg. The fine needles originally suggested by Southey seem to him to be too small.

The old practice of scarification he regards as dangerous, having witnessed intense dermatitis and sloughing from the constant maceration of the skin and the impossibility of adequate cleanliness. A physician should regard it as a reproach on the part of nature if he allows the legs to burst.

In dropsy in general, but above all in cardiac dropsies, diuresis is a result of action on the heart rather than directly on the kidneys. This certainly applies to the digitalis group. It seems that it also applies to diuretin, which, in the experience of the author, has been of no avail in purely renal dropsies, but which often greatly increases the flow of urine in cardiac dropsies. It has, indeed, seemed that the action or failure of diuretin to act on the urine in cardiorenal cases may determine the predominance of the heart or the kidney element at a given time.

In his use of caffeine, the author has never got such results as the French report.

Apocynum cannabinum, on the other hand, has rendered him good service when other things have failed.

Calomel he gives as a diuretic in doses of three grains every four hours for two or three days, usually uncombined with opium, special attention being given to the mouth to prevent salivation. He does not use calomel either as a purgative or diuretic unless he feels sure that the kidneys are suffering from nothing more than passive congestion. As a rule it does no harm; but, like arsenic and lead, mercury is largely excreted by and is an irritant to these organs. The author has known a single dose of calomel to cause extreme salivation in nephritis, and is, therefore, rather afraid of it. There are, moreover, other agents equally good for the purpose and more free from danger. Squills and calomel may enhance the effect of digitalis.

IN PRAISE OF RUM AND MILK.

Dr. FRANCIS T. BOND in the *Lancet* of April 21, page 1135, draws attention to the great value of this combination as what one might term a food tonic, and it is pleasing to note that he uses the term Jamaica rum, for between Jamaica rum and the rum which is too frequently sold (Demerara rum) there is a very wide difference indeed. Some two years ago the writer had occasion to investigate this question of the difference in quality between Jamaica and Demerara rum, and also to investigate the therapeutic action of good rum itself, and found that Demerara rum contained a little over 60 parts of combined ethers per 100,000 parts of absolute alcohol, whereas Jamaica rum contained anything from 300 to 600 parts of compound ethers in the same amount of absolute alcohol.

The author went to considerable trouble to look up old authorities on the question of the therapeutics of rum, and was somewhat astonished to find them speaking so highly of this particular spirit. It

was stated by one of these authorities that rum had a more decided action than either brandy, whisky, or gin in increasing the amount of carbonic acid given off from the system. It was further stated that rum was the only alcoholic liquor which produced perspiration, and, finally, the important statement was made that rum was one of the very best alcoholic restoratives, its action being not a mere flash-in-the-pan, but of a steady and conservative character. Dr. Edward Smith, Dr. James Inman, Dr. Letheby, and Dr. Ringer all agreed upon this point. The first named stated that "the old-fashioned combination of rum and milk is the most powerful restorative with which he is acquainted." Dr. James Inman stated that "for internal use in cases of phthisis and similar diseases rum and milk is far better as a means of supplying fat to the body than cod-liver oil." The author has himself tested the remedy in a number of cases, and can personally vouch for the truth of the matter, but, he repeats, the greatest care should be taken to obtain Jamaica rum and not Demerara rum.

THE BEARING OF METABOLISM EXPERIMENTS UPON THE TREATMENT OF SOME DISEASES.

In the London *Lancet* of April 28, 1906, SPRIGGS writes upon this topic and has this to say of nutrient enemata. In patients receiving nutrient enemata it is important to remember that we are dealing with a condition of partial starvation; enemata as usually given contain a fuel value of not more than 200 kilocalories in each enema. We must inquire how much food and of what kind is likely to be absorbed, and what relation the quantity bears to the actual needs of the body. A fasting man (Cetti) used up tissue to the extent of about 30 calories per kilogramme. During sleep and with as complete rest as possible the figure may be as low as 25 calories per kilogramme. Even if only a portion of this be supplied it is of great value, as we have seen that a man can survive very much longer if a part of his energy be furnished than in hunger.

In such conditions as gastric ulcer, when it may not be desirable to supply food by the mouth, this question is of great importance. We want to know what foodstuffs are made use of when introduced into the rectum and in what quantities. Volt and Bauer and Eichhorst showed that the absorption of albumin is aided by salt. A one-per-cent saline solution is isotonic with the intestinal wall and forms a suitable medium for the conveyance of foods. Leube carried out experiments in which meat and pancreas were mixed, and concluded that a considerable quantity could be taken into the body in this way. Food was also given by the mouth, however. Boyd and Robertson do not recommend this enema, however, as they find the putrefaction in the bowel was excessive. Ewald obtained good results as to the absorption of eggs and other substances, such as peptone. His observations were made for the most part on a neurotic woman, who was also receiving food by the mouth. Brandenburg concluded that only one-third of the casein of milk is absorbed, and other observers have also reported on this point unfavorably to casein. In 1903 Ehrström investigated this point afresh. He pointed out that O. Cohnheim has shown that casein can be directly broken down by the erepsin of the intestinal juice without previous peptonization, while other proteids cannot. On the other hand, it is probably more easily acted upon by bacteria. The following enema was administered two or three times a day to a patient with carcinoma of the cardiac orifice: 50 grammes of dextrose, 150 grammes of warm milk, and 15 grammes of proton (a combination of soda with caseinogen). This has a heat value of 350 calories. No abnormal fermentation was observed. An analysis of the feces showed that 80 per cent of the nitrogen was absorbed. He believes that the caseinogen was really broken down—that is, digested—in the bowel. If this substance be introduced into the blood directly it appears in the urine, but an investigation of this point by means of a frequent examination of the urine showed that this did not occur.

Bial mentions a research by Zehmisch, in which enemata were given consisting of milk, eggs, sugar, and salt. The proteid and fat were very badly absorbed, the figures for absorption being: 1.5 per cent proteid, 6 per cent fat, 67 per cent sugar, and 31 per cent salt. These results are exceedingly unfavorable except

as regards the sugar. Bial made one-day observations upon himself on two occasions with a 10-per-cent solution of Witte's peptone. He found that 50 per cent was absorbed, and if alcohol were added 66 per cent, and recommends the following enema: Peptone, lactose, and absolute alcohol, of each 25 grammes; tincture of opium, 10 drops; and water up to 250 cubic centimeters; to be given three times daily. The enema contains no fat.

Boyd and Robertson have recently carried out some very useful observations. Six patients were observed for six days each, and different enemata were given, six-hourly, no food being taken by the mouth, and the urine and feces were analyzed daily. They found that proteid in the form of milk and eggs is very little absorbed from the bowel. From 30 to 70 grammes were given, and from 4 to 14 were absorbed. In two cases when the white of one egg was given just as much was absorbed, 9 and 16 grammes, as in four cases with the whites of two eggs, in which 4, 7, 10, and 11 grammes were absorbed; therefore no definite relation existed between the amount given and that absorbed. The highest caloric value obtained in the day from proteid was 56 calories.

With fat results much more favorable were obtained than by the above mentioned workers. We have seen that Zehmisch reported an absorption of 6 per cent only, and Munk and Rosenstein in their observations on a patient with a lymphatic fistula reckoned that about the same proportion was taken up when lipanin was introduced into the rectum. Boyd and Robertson found that from 12 to 51 per cent of fat was retained from milk, the yolk of egg, and in one case from cod-liver oil. The absorption was absolutely greater when more fat was given. In four enemas for the one day of 2 eggs, 47 grammes of dextrose, 10 cubic centimeters of cod-liver oil, with saline solution, there were 103 grammes of fat, of which 46 were absorbed, having a heat value of 426 calories; in others 24.35, and as already mentioned, 51 per cent was absorbed. Such a utilization of fat in these emulsified forms is of great importance, and exerted, as might be expected, a distinct proteid-sparing action, much less nitrogen being passed in the urine. Hausmann has recently found that of a 15-per-cent solution of grape sugar 60.3 per cent is absorbed in two hours, of cane-sugar 51.5 per cent at most, and of milk-sugar 37.5 per cent. Ten-per-cent alcohol delays absorption, but its caloric value more than makes up. The sugar absorption is helped by one per cent saline solution.

We see therefore that sugar is well taken up from the rectum. To exclude the possibility of its being simply broken down by bacterial action these observers applied to it an experiment used by Ehrström in the case of caseinogen. Dextrose was digested with feces in an incubator, and it was found that less than one per cent is broken down in four hours. From the enemata 37 to 81 grammes of dextrose were taken up in the day, being from 150 to 330 calories in fuel value. No glycosuria was observed.

It follows from the consideration of the above figures that the feeding was effective. They recommend an enema of the yolks of two eggs, 30 grammes of dextrose (pure), and pancreatized milk to 300 cubic centimeters (ten ounces). In the experiments the caloric value actually taken up varied from 240 to 645 calories in a day. The average was 389. The enema here recommended contains 300 calories. Therefore four in the day contain 1200, and probably about 500 will be absorbed. The authors lay stress on the smallness of this value, and point out that Umber has shown that gastric juice is secreted into the stomach during rectal feeding, and that this would be prejudicial to an ulcer.

Nevertheless it is believed that these results are encouraging to this method of feeding. Five hundred calories is nearly half the need of a woman of 50 kilogrammes lying in bed. At 25 calories per kilogramme she would require 1250 calories, and it is obviously very much better to supply 500 calories if the patient is in any danger of malnutrition than that she should break down more tissue still to furnish it herself. For instance, if she excreted 10 grammes of nitrogen in the urine this means that 62.5 grammes of proteid are broken down, or 300 of actual flesh, and this would furnish 250 calories of the 1250, and the remaining 1000 calories would need the oxidation of 107

grammes of fat—that is, about 150 grammes of fatty tissue. But the 500 calories absorbed from the rectum would save a good proportion of the fat breakdown, and although very little proteid is absorbed the other foodstuffs will still spare the tissue proteid, as, indeed, the figures in the above research show. Thus, although we must be perfectly clear that rectal feeding cannot supply the caloric need of the body, even under the most favorable conditions, it is shown to be a means by which we can introduce a valuable amount of food. The prospect of supplying any useful quantity of proteid is regarded by Boyd and Robertson as slight, and indeed the quantity taken up was very small. But Ehrström's results with milk and proton and Bial's with peptone are suggestive that more success might be attained with those substances. Since 10 or even 20 per cent of dextrose is taken up it is clear that it is not necessary under suitable conditions to have a fluid isotonic with the rectum, but the more nearly this is attained the more likely are the enemata to be borne for long periods. Dextrose, unless pure, contains irritating substances. The rectum must always be washed out daily, and it is very important that sufficient fluid be given. Experience is showing that enemata of 10 or 15 ounces can be retained if slowly given, and they have the great advantage of needing less frequent administration. Cannon showed that in the cat an antiperistalsis of the large intestine is a normal occurrence, and is also set up when a nutrient enema is passed into the rectum carrying the material to the cecum, and may force fluid through the ileocecal valve, but only when sufficient bulk is present. There is much more chance of the contents of an enema reaching the upper part of the large intestine, and even the small, if a good quality be given.

AN EXPERIENCE WITH CASCARA.

The *Boston Medical and Surgical Journal* of May 10, 1906, contains the following statement by CHASE which possesses practical value:

In a recent case of gastric ulcer the writer prescribed ext. cascara sag. fl. (P., D. & Co.), directing the patient to take 15 to 20 drops before each meal, and to diminish the dose as the bowels became regulated. At the next visit the patient reported that the medicine had not materially influenced the action of the bowels, that even teaspoonful doses had caused only slight evacuations; moreover, she said the medicine was not as bitter as she had been given to understand. Chase's suspicions being aroused as to the product she was using, he requested her to bring to him the bottle and its remaining contents. On its receipt he at once discovered by the taste and odor that the preparation was not the one he had prescribed. He had the same prescription filled at another druggist's, and the desired result was obtained.

Assuring himself in so far as possible that substitution had been practiced in the case of the original prescription, he wrote the pharmacist accusing him of substitution. The pharmacist at once denied the accusation, and brought to his office the stock bottle from which the prescription had been filled. The bottle bore the proper label, but by comparing its contents with samples of the true product the druggist was soon convinced that something was wrong.

With the assistance of a representative of P., D. & Co., it was discovered by the number of the label that the bottle of fluid extract of cascara had been put up by his firm in 1888, eighteen years previously. What preparation of cascara the bottle contained at this time could not be learned, but as cascara does not deteriorate with age, as is understood, the most natural conclusion is that some time in the past another than the original product had been poured into the bottle. The mutual understanding between the druggist and the author is that he unintentionally substituted.

This experience explains how in an unusual way an inferior product may be substituted for a good preparation.

The author's experience with and confidence in the preparation prescribed has led him twice in the past two years to the detection of practically worthless preparations of cascara. He has often heard physicians state that they do not obtain results with this drug (but many more that they do); the reason he has found at times is that either a good fluid extract was not used or else the drug was not properly administered. In the cases in which a laxative is indicated (and the

number is far less than is generally supposed if other measures are properly carried out) the writer has found no drug so generally beneficial as a good fluid extract of cascara, when given in small doses three times a day before meals. The same amount given in less frequent doses will not produce the same results.

THE NON-OPERATIVE METHODS OF TREATING CHRONIC DISCHARGE FROM THE MIDDLE EAR.

LAKE in the *Clinical Journal* of May 2, 1906, writes entertainingly on this topic.

It may be taken for granted that the most usual method of treatment, and the one most in favor, as well as frequently the most suitable, is antiseptic irrigation. After this follows insufflation of powders, next the use of guttæ, or drops, and finally surgical interference.

With regard to irrigation we have, we may say, hundreds of solutions, but a dozen will be all that we require, and to select the best is impossible; but all antiseptics that are used should be of sufficient strength not only to kill the germs, or such germs as they are able to come in contact with, but also to inhibit sporulation. Of these, lysol and creolin are more or less alkaline, and on account of their alkalinity are able to saponify the fatty matter present in the discharge and on the sides of the canal, and so obtain greater cleansing. Perchloride and biniodide of mercury, carbolic acid, with formalin, are strong antiseptics. Boracic acid is an antiseptic and slight astringent.

One great point to remember in the use of any lotion is that it is better to employ a glass syringe oneself, and always advisable that the patients themselves use a glass syringe, over the nozzle of which is drawn a piece of fine india-rubber tubing. Glass is cleanly, and any particular part can be seen. The rubber tube is passed gently down as far as it will go into the canal, and serves two purposes: first, it causes no pain, and therefore is extremely useful in children; and secondly, it gets beyond the discharge, so that with much less force a greater clearing out is effected, and the author strongly advises all those who are not in the habit of using this little piece of tubing to try it and see what they think of it.

Another important thing to remember with regard to lotions is that, as a rule, they are not to be persisted in for more than four to six weeks if they do not appear to be doing good, but another antiseptic selected, and preferably one of a different class. Nor should one which did good at first be persisted in if the benefit be not increased. And, lastly, in order to obtain the best possible results one should either perform one's own syringing or be quite certain that the syringing is done in an efficient and satisfactory manner; for hundreds of cases which are now operated upon would rapidly and assuredly recover if the irrigation was done according to the lines the author has laid down. He has often observed the most extraordinary differences when the syringing has suddenly been made effective. The patient should always be seated; the fluid should be of a comfortable temperature, of about 100°, and where possible the ear should be thoroughly dried after each irrigation. Sometimes, after irrigating an ear and cleansing it, especially if the membrane is nearly destroyed, insufflation of sterilized boracic powder may be combined with irrigation. Otherwise the more frequently irrigation is performed the better, but the minimum should be twice a day. The number of times may be diminished according as the discharge diminishes, but should be increased if the discharge is excessive. The author has sometimes thought that a ¼- to ½-per-cent solution of formalin acted particularly well when the discharge was very purulent, and the mercurial solutions when there was a large amount of muco-pus and mucus being secreted. This, however, is very likely only fancy.

The next means at our disposal is that of insufflating powders. There are several methods of insufflation, either by using a powder-blower or by taking a small piece of quill or glass tubing, such as is used for feeding-bottles. The necessary amount of powder, which must not be more than three to five grains, should be put into the glass tube or quill, which is inserted into the external meatus, and then the free end of the rubber tube is carried to the mouth and the powder blown out. Now it must be thoroughly understood by all one's patients that no insufflation of powder must ever take place into a dirty ear. The ear must be thoroughly cleansed and dried

by the surgeon before the first insufflation, and if the discharge is large in amount, but the surgeon still wishes to use insufflation, it must be combined with irrigation. Along with the diminution of the discharge the frequency of irrigation may be diminished until it is used only twice a week, or even less, but in these cases it is well that the irrigation is sometimes done the day before the surgeon is to be seen.

Boracic acid is probably the best powder that we have at our disposal. Next comes iodoform, which may be rendered inodorous by the addition of a few drops of geranium oil.

Under no consideration whatever should powders be used in any case in which the perforation in Shrapnell's membrane or in the drum itself is small, or situated high up. Therefore the chief indication for the employment of this method is total destruction of the membrane, or a large perforation situated low down. If the perforation is small and situated high up, the use of any powder is not unattended with danger, as it might easily occlude the perforation, and the pent-up discharge might thereby be diverted into channels less safe than the external auditory canal. In this connection the writer reminds us of the celebrated Parisian quack aurist, who for a short time had a tremendous reputation for curing discharging ears by means of a white powder, till a run of bad luck set in and a lot of his patients died, and they died from intracranial lesions. An inquiry was held, and the powder was found to be plaster of Paris.

Drops are the next means of dealing with these matters, or, more correctly speaking, lotions used as drops, and they are more generally applicable in suppurative disease of the middle ear than in any other form of disease, and may be combined with both irrigation and insufflation, and brilliant results will often attend their judicious employment. They are especially valuable under the following circumstances: Alcoholic drops if a discharge is watery and extremely rebellious to treatment where the mucous membrane is fleshy or there is a tendency to the formation of polypi; peroxide in children, where the discharge is thick, the perforation small, or situated high up, in Shrapnell's membrane, or when a sinus outside the tympanum is present. When there is a large perforation and pus is coming down from the attic, and when cholesteatoma is suspected in that region, one should, if possible, use the alkaline form of peroxide, as it is less irritating. Ten or twenty drops should be instilled into the ear, and the head laid on the opposite side; the head should remain on that side for twenty minutes. If alcohol is used it is well to begin with a low grade of strength, and to increase it; the same holds with peroxide. In connection with peroxide it is advisable to remember that sometimes the amount of gas evolved may give rise to vertigo if the external semicircular canal is exposed. Alcohol may be employed as a vehicle to carry antiseptics, such as carbolic acid, boracic acid, or mercury. Again, dilute hydrochloric acid may be used in the same way to remove small pieces of necrosed bone, which might otherwise be difficult to eradicate without operation.

Briefly, as auxiliary forces we can occasionally bring in to aid us in obstinate and difficult cases, especially if the perforation be small or situated in Shrapnell's membrane, a method of washing through the ear from within. A Eustachian catheter is passed and proved to be in position, and the nozzle of the syringe is placed in the end of the catheter and the ear syringed out with a weak boracic acid solution or a sterilized normal saline; and in the case of attic perforation it is often well to wash them out by means of a Hartmann cannula, using a strong antiseptic in the little bag which is usually attached.

Although in these remarks which have been made the author has attempted to deal with the treatment of middle-ear suppuration, he has carefully abstained from more than a passing reference to operation. The conditions which should cause one to undertake operative interference are practically the following: If an acute case suddenly becomes active; where, in children, the removal of adenoid vegetations has failed, and the disease has lasted for a considerable period—say six months—under good treatment; and in adults, without the adenoid operation; where there is giddiness and pain, with recurrent attacks, facial paralysis, incurable cholesteatoma, lateral vertigo, on syringing, persistent pain, contraction of the external meatus, fistulæ which will not

heal, necrosis, and tubercle. Beyond this he advises that one remember that the constant absorption of septic products may act so deleteriously on the patient's health as to justify operation. He does not think that it is justifiable to operate unless one has one of two reasons for operating: either the case is incurable without operation, or it is necessary for the patient's life or health that operation should be done.

Finally, in children never consider that all has been attempted unless one has removed the adenoids efficiently. That alone in children will cure over 50 per cent of the cases. And, finally, he urges the necessity of keeping a careful watch on any patient suffering from otitis media.

TWENTY-TWO FATALITIES WHICH HAVE OCCURRED UNDER ETHYL CHLORIDE.

LUKE writes a report on the subject in the *Lancet* of May 5, 1906. In his remarks and conclusions the writer is struck by the fact that some of the cases recorded were very bad subjects for an anesthetic. Again, several of them might, with a very much greater degree of safety, have been negotiated with chloroform or a mixture containing it on an open inhaler rather than with ethyl chloride. For instance, no anesthetist of experience and sound judgment would have considered it good practice to anesthetize some of the cases with ethyl chloride—in a closed or even semiclosed inhaler, and the necropsy in one case showed this to be unsuitable. Nitrous oxide would have been equally lethal in the circumstances. In still other cases death was obviously due to asphyxia, and in one case at least death could have been avoided by more prompt action. The most unsatisfactory cases from the point of view of the safety of ethyl chloride were three patients whose organs were in a healthy condition, who had no alcoholic history and suffered from no constitutional dyscrasia, dying from syncope of just that very sudden and unpreventable character which we have been wont to look for in a certain percentage of chloroform cases. It is noteworthy that out of these twenty-two fatal cases no less than eight occurred during dental operations.

What is the approximate death-rate under ethyl chloride? In 1902 Seitz, of Constanz, endeavored, with the material then available, to establish the relative mortality under ethyl chloride, and investigated something like 16,000 cases, chiefly on the continent, and he found that up to that time only one fatality had been recorded (that of Lotheissen), and he accordingly fixed the death-rate at 1 in 16,000. Luke endeavors at the present time to make a rough estimate of the mortality as follows: There are some 35,000 medical and dental practitioners in the United Kingdom at the present moment. One may safely assume that during the past three years at least one-seventh, or 5000, of these have been using ethyl chloride pretty constantly, probably not less often than once in every ten working days—that is to say, that each of them has given ethyl chloride about thirty times per annum on the average, which will amount to 150,000 administrations per annum for the whole profession, or 450,000 for the three years. He finds that out of the above list of fatalities, seventeen occurred in England, so that with this data the mortality works out at 1 in 36,000 approximately, upon which basis ethyl chloride compares very favorably with ether and chloroform. It is almost certain, however, that there have been considerably more than these twenty-two deaths which have come to light, but even if we were to find on continued inquiry that there were as many as three times the number (and this is rather unlikely) we should still only have a death-rate of 1 in 8000, and the fact remains that ethyl chloride is a comparatively safe anesthetic agent, certainly much safer than chloroform for short operations.

If we except the extraction of teeth, there is probably no operation for which ethyl chloride has been more frequently employed than that for the removal of adenoid growths of the nasopharynx. In the throat department of the Royal Infirmary, Edinburgh, alone it has been administered on upwards of 1500 occasions without a mishap. And out of the fatal cases above recorded we have only one occurring when the anesthetic was given for this particular operation. In this case the administrator was a student who had practically no experience of anesthetics, and the operator was a house surgeon who had performed this

operation only on half a dozen previous occasions. On examination of chloroform statistics we find that the number of fatalities which have occurred under this drug when used for adenoid operations is very great, and during the decade 1890-1900 no less than 100 such deaths occurred (Chaldecott). This is surely a strong argument for the employment of ethyl chloride and the avoidance of chloroform in operations for the removal of adenoids and tonsils.

As regards personal experience, the author has now administered ethyl chloride to all classes of patients on considerably over 2000 occasions, and has been happy in not seeing a single fatality, and indeed nothing worse than two cases of temporary respiratory arrest with considerable cyanosis and very widely dilated pupils. One of these cases was alarming and demanded immediate and careful treatment, and such cases, quite apart from actual deaths, make it quite plain that no one should undertake the administration of ethyl chloride at any time unless he is prepared and quite qualified to deal with an anesthetic emergency. The dangerous symptoms come on with a rapidity not exceeded by the onset of troubles in chloroform anesthesia. Ethyl chloride is most essentially not an anesthetic to be administered, as it has been in the past, haphazard, according to the "instructions for use" provided with a new inhaler by the enterprising instrument-maker or druggist. In dental work it is best not to give ethyl chloride alone, but either to give it in mixture with nitrous oxide for short cases, in small doses of from two and a half to four cubic centimeters, or in sequence with ether for the longer cases.

In the author's opinion the "boom" in ethyl chloride is well-nigh at an end, but while the publication of such a list of deaths as is recorded above may well discourage the promiscuous and irresponsible use of a highly toxic and very rapidly acting anesthetic, yet one would hope that ethyl chloride will not be unduly discredited or sink into comparative desuetude; it should rather take its place as a valuable addition to the anesthetist's armamentarium for properly selected and suitable cases. The fact, however, that any unregistered dentist can administer such a drug without let or hindrance under the impression that it is a sort of "glorified nitrous oxide" to any or all of his confiding patients constitutes a public danger which cannot be ignored.

ACUTE DISEASES OF THE NASAL SINUSES.

SPOHN in the *New York Medical Journal* of May 12, 1906, gives the following advice: With an acute sinusitis is always associated a rhinitis having constitutional symptoms. Hence there is a need for general as well as local treatment. At the beginning of an acute attack of sinusitis the patient should be given a saline laxative, preferably magnesium sulphate. This should be given daily, as needed, to move the bowels freely. Quinine, calomel, and Dover's powders are old remedies, but they are reliable. Their actions are antiseptic, laxative, diuretic, and diaphoretic. The object should be to relieve the system of all toxins. In those cases in which the inflamed sinus does not yield to treatment, atropine will often relax the tissue at the outlet and thus establish drainage.

The rhinitis should be treated locally with soothing sprays. When the diagnosis is definitely settled, which sinus is inflamed, its outlet should be painted with a ten-per-cent solution of cocaine and adrenalin. This will shrink the tissue so that the outlet will allow the secretions to pass into the nose. The nasal passages should be cleansed of all secretions with a warm antiseptic solution, and then sprayed with a warm camphomentholated oil. It should be a sterilized petroleum oil with a specific gravity as heavy as is possible to spray. Many physicians have discarded the oils in nasal work, because their results have not been good. This is due to the oils; the light paraffin generally employed is often irritating to the mucous membranes. This treatment should be repeated daily, or as often as the gravity of the case indicates. As soon as the stage of resolution is established, venous congestion will be overcome, relaxation take place, and normal drainage will be resumed. If free drainage be given the inflamed sinus, it will not become chronic. But if the secretions are retained in the cavity and its natural orifice closed, it will be necessary to give it drainage through an artificial opening.

If the inflammation is in the maxillary

sinus, the opening depends somewhat upon the cause of the trouble. If due to a diseased tooth, it should be extracted and the fossa enlarged to give free drainage for the pent-up secretions. If the teeth are normal, an opening can be made into the antrum from the lower or middle meatus. Some operators advocate the former, even if the bony wall is thicker than in the region of the middle meatus. Others say that the natural opening, the osteum maxillare, should be made sufficiently large to give proper drainage. There is no doubt better drainage can be had by making the opening through the canine fossa or the alveolar process of the maxillary bone. The conditions of the case should indicate where the outlet should be. If established early and the sinus treated antiseptically, the case will usually make a quick recovery. If the sinusitis should be in the anterior ethmoid or the frontal it is not so easily treated, because their access is more difficult. The same is true of the middle and posterior ethmoid and the sphenoid sinuses. From the nature and location of the exudates coming from these cavities, from the degree and locality of the pain, one can usually tell whether the inflammation is in the sphenoid frontal or ethmoid sinuses. The treatment of these cavities is very much the same as in antral troubles. Given a rhinitis, followed with a chill and fever, and with pain in the region of one of the sinuses, it is almost invariably an acute sinusitis. It matters not which cavity it happens to be, it should have good drainage. If the natural outlets cannot be made patent, then artificial openings should be made. If seen early and treated carefully, the prognosis of all these cases is generally good.

To treat cases of acute sinusitis a long time with sprays, without a definite knowledge of their conditions, is certainly bad practice, because it is often difficult to reach the hiatus, the outlet of the maxillary, frontal, and anterior ethmoid sinuses. The obstructions in the nose, such as enlarged turbinates, neoplasms, and deviated septi, impede the drainage in very many cases. To temporize in these cases is allowing the disease to become chronic. Not all nasal obstructions lead to sinus diseases, but practically in all sinus troubles there are some nasal obstructions. The middle turbinate is the greatest offender, and when it impinges upon the hiatus it should be resected. In fact, all obstructions should be removed if they interfere with proper nasal and sinus drainage.

CHRONIC COLITIS IN CHILDREN.

The treatment of these cases must be considered under the heads of diet, general management, drugs, and local applications. As a rule milk, predigested if necessary, is the best diet, but occasionally it proves absolutely unsuitable. The object to be aimed at is to give a nutritious diet which contains as little waste matter as possible.

Infants should be fed on whey, albumen-water, rice-water, condensed milk, malted milk, peptonized milk, or mixtures of the above. The number of feeds and the amount of each must be rigidly regulated, and careful observation kept on the general state of the child and the character of the stools. Too much or unsuitable food may be indicated by fretfulness and irritability before there is definite change in the motions.

Older children should be fed in the same way or on undiluted milk, if they can digest it, and in addition they can be given raw or lightly cooked eggs, malted foods, jellies, sugars, pounded meat or fish, and mashed potato. The more frequent the stools and the greater the quantity of mucus, blood, or membrane in them, the more carefully must the patient be dieted. Gradually the diet is increased, according to the progress of the case, careful watch being kept on possible ill effects. Generally speaking, the patient should be kept in bed, but this is a matter which can be only decided in each special case. Trained nurses are an immense advantage. Otherwise it is almost impossible to get the direction as to diet, fresh air, etc., sufficiently accurately carried out. Weeks of careful treatment may be nullified by the injudicious administration of some unsuitable food.

In the mild catarrhal cases there is no objection to an open-air life in a warm, dry climate. Clothing should be warm, the abdomen specially protected, and care taken to avoid chills and damp feet. Keep the bowels open. Small doses of calomel or gray powder for a week at a

time seem beneficial as antiseptic and antifermentative. Oleum ricini, or sulphate of magnesia or sodium, should be given in the early morning before breakfast. On the whole the writer prefers the daily saline aperient in most cases.

Of drugs for internal medication it is difficult to speak confidently. The writer advocates a mixture of yolk of one egg, an ounce of glycerin, and one or two ounces of olive oil, with ten to fifteen minims of creosote. Of this one or two teaspoonfuls may be given three times a day for a long period. It is most useful in infants. The creosote prevents the mixture going bad, and may have some beneficial influence on the alimentary tract. If the bowels are at all loose or if blood is passed, large doses of bismuth should be given every two to four hours. Of other internal remedies the author suggests the possible value of petroleum as a lubricant and protective in cases of ulceration. The resources of pharmacy may be able to provide an antiseptic compound of petroleum which is not absorbable.

It is of great importance to remember that drugs given by mouth have to go a long journey before reaching the site of the disease, and that the benefits derived from them may be more than counterbalanced by digestive disturbances to which they may give rise.

Irrigation of the colon is rarely advisable except in the ulcerative cases. It must then be tried, if simpler measures fail. Irrigation with a gallon of salt solution, one drachm to the pint, or a similar solution of boric acid, can be tried in all cases at bedtime, with the object of emptying the lower bowel and giving it a lengthened period of rest. In prolonged catarrhal cases an astringent such as tannic acid can be used. In the membranous form no benefit should be expected from irrigation.

For prolonged ulceration silver nitrate injections, ¼ to 1 grain to the ounce, according to the age of the child, may be tried; from a pint to a pint and a half should be injected. The colon should be washed out previously with saline solution.

Of further measures the author has no experience. In adults a few cases have been treated by opening the cecum or appendix, and irrigating daily from above downward. The cecal opening is unsatisfactory because of the presence of an artificial anus in the right groin, the difficulty in closing it, and the irritation and partial digestion of the skin by the intestinal contents. The appendix has none of these objections. It can be clamped, and fluid can be injected through it daily. Subsequently it is excised. Such a line of treatment may be necessary in ulceration of the ascending colon, and may prove successful when all other measures have failed. This is merely mentioned as a last resort in apparently hopeless cases.—CANTLEY, in the *Clinical Journal* of April 25, 1906.

TREATMENT OF PUERPERAL SEPTIC DISEASES.

In the *Medical Record* of April 28, 1906, MARX in discussing the treatment of puerperal sepsis states his plan as follows:

If visual inspection reveals no lesion of the perineum, vagina, or cervix, he examines further as to the status of the uterus. Foul discharges, high temperatures, and relatively low pulse can only mean intrauterine sapremia. We are then, and then only, justified in exploring for retained products of conception. Having located these as the source of infection they are removed by any means at our command; whether by the curette or hand is simply a matter of choice, as the experience of the operator teaches. This is done once, and once only—further drainage being secured by intrauterine gauze or drainage-tube. But this is all; for if this be the source of infection, and is thoroughly removed, it will positively shut off danger from this direction. If decomposing intrauterine secundines are not found, the symptoms of sapremia nevertheless being evident, we are then dealing with a puerperal ulcerative endometritis. This diagnosis is made all the more positive by the presence of ulcerative areas upon the cervix. Here any active intrauterine interference is positively contraindicated. Curettage is the worst possible thing to be done, for we curette away this sloughy area, denuded as it will be, to be attacked by a new slough each time it is thus traumatically abated. We thus carry the infection

deeper into the uterine wall and open up fresh areas of infection. Our strength of attack is by means of pure cauterants. A thorough application of pure carbolic acid, 50-per-cent solution of zinc chloride, or the pure liquor ferri, are all at our command. The uterus is then treated by means of pure alcohol gauze, in the center of which is placed a large drainage-tube leading from the uterus into the vagina. Into this tube, and thus keeping the intrauterine gauze moist, are injected from four to five ounces of pure or 50-per-cent alcohol four to five times a day. This gauze can remain in place without changing for a number of days. An ice-bag over the uterus and large doses of ergot complete the treatment. It is just in this class of cases that Marx deprecates overactive treatment. Other things being equal, the less tinkering done the better are the chances for the patient.

In a series of thirty-two cases seen in the short period of six weeks, only one patient died, and she was a bad subject from the start. In cases of puerperal ulcers in other parts of the genital tract, it is our purpose to attack them vigorously from the start. The exudative variety is readily recognized, but it is more difficult with the desquamative ulcers. With the latter, careful and close examination, comparing one part of the tract with the other, will soon reveal the infective nidus. Where ulcerative areas are evident and limited to the lower genital tract, under no condition is the interior of the uterus to be invaded by hand or instrument because of the evident danger of carrying the infection higher up. The above mentioned cauterants are most vigorously applied. Carbolic acid in pure form is our choice, because of its painlessness, its deep searching influence, and the wonderful inhibition alcohol plays in the control of its action. The acid is applied to all parts infected, followed by pure alcohol in the course of a minute or so. This is repeated every twenty-four to thirty-six hours until the parts appear healthy. A decided drop in the temperature soon follows this application. A strip of gauze is introduced within the parts to cause a separation of the tissues thus treated, and douches are regularly given.

Puerperal infection depends upon infection from without, gaining its entrance practically always by lesions in the vagino-uterine route. We should discover these, and attack them energetically and wisely, as we would infective areas in other parts of the body. Overtreatment is reprehensible, unwarranted treatment dangerous. The curette has served us well in appropriate and selected cases. This instrument should not be blamed for its shortcomings; the blame rests with the man behind it, even as it is the man behind the gun who does the work. The curette is blind; the guiding hand is sentient; thus always, as in life, let the seeing, guiding mind lead the blind. He who seeks blindly seeks not well.

HEPATIC INSUFFICIENCY.

CROFTAN writes on this subject in the *Medical Record* of April 28, 1906. He says that probably the most important dietetic rule in the treatment of hepatic insufficiency is a negative one—*i.e.*, that all alcoholic beverages should be rigidly excluded from the diet. There is much aggravated prejudice in the minds of physicians and the laity in regard to the dangers of alcohol in most diseases. Alcohol constitutes a very valuable remedy, and, in a sense, a food. But we do not realize sufficiently that pure ethyl alcohol is the least toxic of all the alcohols that are used in the food of man. The higher alcohols and certain aldehydes and essential oils that are found in cheap liquors, and that bestow the aroma or bouquet upon the various wines, liquors, and cordials, are much more poisonous even in the small quantities in which they are used: thus, *e.g.*, absinthe contains some eleven different principles, all of which are poisonous. Alcohol itself, therefore, unless taken in enormous quantities is not so terribly dangerous, but no one drinks pure dilute alcohol, but rather alcoholic beverages of various kinds; and as the latter are poisonous on account of the impurities they contain, it should be a cardinal rule in the treatment of hepatic insufficiency to exclude them rigidly from the diet.

On the same grounds spices and condiments should always be excluded because they contain essences of alkaloids that are toxic to the liver.

A second cardinal rule is to limit the ingestion of fats, for they are very poorly digested owing to the deficiency of bile

acids from the bowel; it is clear that in this case, as stated above, they are not properly saponified and emulsified, undergo rapid decomposition in the bowel, and in this way lead to the formation of acid and acrid products that are highly irritating to the liver and the bowel. It has been shown that in cases of hepatic insufficiency the urinary toxicity increases greatly when much fat is given. While it is not necessary, therefore, to exclude the fats altogether from the diet, they should be reduced to a minimum.

Meat and eggs should also be reduced, for they furnish the bulk of the most toxic intestinal products whenever intestinal putrefaction goes on unchecked, and this we know to be the case when the bile is deficient or its composition is changed.

There remain, therefore, as chief articles of food, vegetables and carbohydrates; the latter, in particular, are not toxic, nor do they lead to the formation of toxic bodies in the bowel; and besides, sugar, as we know, stimulates the liver functions to activity. Of course, care should always be exercised not to administer a diet containing too large a proportion of carbohydrate food, for otherwise fermentative dyspepsia, constipation, and a variety of digestive disorders may supervene. One should simply increase the amount of carbohydrate food to replace the deficit of fat. Milk can always be given with impunity. An exclusive milk diet, however, is for many reasons objectionable. To summarize, the patient should be placed upon a bland mixed diet, containing no alcoholic beverages, a minimum of fat, a small amount of albuminous food, and plenty of fresh fruits, vegetables, milk, cereals, starches, and, with care, sweets. That the details of this diet should be regulated in such a way as to consider individual idiosyncrasies and tastes, and above all complication in other organs, notably the kidneys, need hardly be emphasized.

In view of the fact that the chief source of the poisons that intoxicate the liver and produce hepatic insufficiency is the intestinal tract, it is of paramount importance to attempt intestinal antisepsis in every case of hepatic insufficiency that comes under observation. This is especially necessary early in the disease, before the liver cells have undergone anatomical changes. It is impossible within the narrow frame of this article to discuss the means at our disposal for promoting intestinal antisepsis. We are unable, of course, to render the long intestinal tract completely sterile, nor is this desirable, for many of the saprophytes that abound in the normal bowel contents play an important rôle in disassimilating the food elements. In this way they undoubtedly aid the normal digestive ferments in degrading complicated bodies into simpler assimilable substances; moreover, they produce by gas formation or liquefaction certain physical changes in the bowel contents that favor normal peristalsis and the act of defecation. All that we can attempt to do is to hold in check the development of virulent and putrefactive bacteria, and this object, the author believes, can be accomplished by a number of remedies.

That the absorption of bowel poisons after they have once been formed can be restricted by the use of evacuants is clear. A saline laxative given at frequent intervals, combined possibly with enemas to clean out the lower bowel, is a useful measure. Purgatives or drastics that can irritate the liver should be used cautiously.

All attempts that have so far been made to promote the destruction of poisons after they have been absorbed have been abortive. A. Robin, as is well known, introduced a so-called oxidizing treatment and advised the inhalation of oxygen, the use of iron and manganese preparations. The author states he has never seen any tangible results follow this treatment. Cold hydrotherapeutic measures, thanks to the leucocytosis, the increased metabolism, and the better circulation of lymph they produce, are of much use.

URIC ACID SOLVENTS.

If we analyze the various remedies that are recommended as uric acid eliminators or solvents, we find that nearly all of them contain two chief ingredients—*i.e.*, alkali and water; the idea being presumably to alkalinize the blood-stream, thereby rendering the uric acid more soluble and hence promoting its excretion. This in itself is not a bad idea, although it is an exceedingly difficult matter more than temporarily to change the reaction of the blood by the administration of alkalies by

mouth, because the kidneys at once eliminate any excess of alkali. The idea, however, that alkalies given by mouth can in any way aid in dissolving uric acid concretions after they have once formed is, of course, preposterous. One might as well give ether to dissolve the fat of the body in obesity or acids to dissolve the calcium out of osteophytes, on the ground that ether or acids can dissolve fat or calcium salts in the test-tube; in other words, the fact that alkalies are a uric acid solvent *in vitro* does not mean that they can accomplish the same *in vivo*. The amount of ingested alkali that could reach uric acid deposits in the circulation would be so infinitesimally small that a solvent effect could not possibly be accomplished.

This criticism applies with particular emphasis to lithium preparations that are so popular in the treatment of uric acid diseases. In the first place so-called lithia waters contain only a few decigrammes of lithium carbonate to the liter; as they always also contain large quantities of other alkalies, only a very minimal amount of uric acid (according to Berthollet's law) would combine with the lithia, the bulk with the sodium and potassium salts, while at the same time most of the lithium would be promptly excreted as chloride, phosphate, and sulphate. Finally, lithium carbonate, which actually does readily dissolve uric acid in the test-tube, is immediately converted in the stomach into lithium chloride, a salt that possesses only slight uric acid dissolving properties.

Whatever virtues, therefore, the innumerable uric acid remedies and lithia waters may possess they owe to the alkali that they contain, but this alkali acts only mildly as a uric acid eliminator and not at all as a solvent of urate concretions; it acts chiefly as an antacid in acidosis, and possibly as a stimulant to the liver function. The water is probably the most efficacious ingredient of these uric acid remedies, because abundant water-drinking combined with a rational diet, the details of which cannot be enumerated here, undoubtedly acts beneficially in most disorders in which metabolism is retarded and in which incompletely oxidized waste products accumulate.

Until we understand the real cause of gout and allied conditions, until we know which produces the symptoms that are popularly considered to be manifestations of a hypothetical uric acid diathesis, we can do no better than to treat the gastro-intestinal tract and the liver, to promote elimination, and give the patient the benefit of certain symptomatic and local treatment.

If alkali and water are to be used, and we know empirically that they are of some benefit, why not order our patients to drink a few quarts of water a day, to which may be advantageously added a teaspoonful or so of baking soda and a pinch or two of precipitated chalk? This would accomplish all that can possibly be claimed for their goods by promoters of a host of expensive mineral waters and the manufacturers of most of our well-advertised so-called uric acid remedies.—*Journal of the American Medical Association*, May 5, 1906.

LUMBAGO.

To the *Bristol Medico-Chirurgical Journal* for June, 1906, FLEMMING contributes a paper on this practical topic. He points out that although all pain in the lower half of the back is commonly called lumbago, it is not to be wondered at that there is some confusion as to the exact nature of this affection, so that it is well to limit the term to those cases in which the pain is strictly in the lumbar region, occurs only on movement, and is accompanied by more or less definite tenderness. Though it is said that the pain must be in the lumbar region, it may through the posterior lumbar and sacral nerves be referred to the gluteal region and the upper part of the back of the thigh; it may also spread by the quadratus lumborum and the latissimus dorsi upward and outward to the lower ribs and the hypochondriac region.

The great group of cases from which it is quite important to differentiate lumbago is that including affections of the pelvic organs where pain is referred to the lumbar region, and the symptom that may chiefly guide us is that the pain of pelvic disease is not increased simply by the movement of the lumbar muscles; it may be increased by standing or by some change of position, but the mere movement of these muscles while the patient is lying down does not increase the pain. We must be on the lookout for those

numerous diseases which may produce a superficial semblance, and refuse to call any case lumbago until they have all been eliminated. The diseases which are perhaps the commonest causes of lumbar pain are piles, constipation and rectal catarrh, uterine displacement and endometritis, prostatic and bladder disease; but almost any pelvic disease may be included in this list, as also may renal calculus and the passage from the kidneys of uric acid crystals or very acid urine. The pain of malignant disease of the sacrum or ilium is too constantly severe to be mistaken. Difficulty in diagnosis is more usual in chronic and recurrent attacks of lumbago, as here the onset and character of the pain are less marked. More difficult to differentiate are diseases of the sacroiliac synchondrosis and of the vertebræ and their adnexa. Tubercular or syphilitic disease is usually accompanied by other signs, and acute osteomyelitis would be accompanied with fever and the pain be more constant. Spondylitis deformans is probably not infrequently mistaken for lumbago, and only the occurrence of arthritis in other parts would render a diagnosis certain. We must remember that through the external branches of the three upper posterior sacral nerves inflammation may spread to the great sciatic nerve and so cause sciatica, a not infrequent consequence of lumbago.

In the first stage of an acute attack our object is to relieve the pain and to arrest the progress of the pathological changes; in the later stages not only to relieve pain but to restore the mobility of the parts, and in patients liable to recurrences to prevent them. In the acute stage it is the author's belief that in some cases nothing gives so great relief as acupuncture. He says "in some cases," because it is not so in all. The more acute the pain the more sudden its onset, and the greater the local tenderness the more likely is this proceeding to give relief. If his suggestion as to the pathological condition often present—serous effusion beneath the dense fascia—is correct, then we can see why puncture gives relief. The needles should be inserted deeply, two inches or more, into the tender muscular masses at the sides of the spine, left in two or three minutes, and followed by a fomentation. Twenty minutes or half an hour afterward the patient must get up and walk. This should be followed by deep massage night and morning, and care taken that bowels, kidneys, and skin all act well. Many patients will not submit to this not very painful treatment. Then a dose of calomel should be given, large fomentations applied at once, and some diaphoretic and diuretic drug given hourly, but no drug in the author's experience gives so much relief to the acute pain as does aspirin, which he usually gives in addition to the above in doses of fifteen grains every four hours. When the acute stage has passed much remains to be done, but it must be done by the patient, who should walk and use his affected muscles several times every day, not for too long at a time for fear of setting up fresh trouble. Good massage and quite hot baths will help. Bowels and kidneys must be kept acting well and the back kept warm, but not in a sweat. Diet should be light and stimulants entirely prohibited. In cases where there is in the later stages aching during rest the constant current has given much relief, ten to twenty milliamperes, anode on abdomen, cathode on aching part. Relapses may be guarded against by regular and plentiful exercise, moderate feeding, avoidance of constipation and of undue fatigue, and warm but not impervious clothing on the back—in fact everything to promote good general health and good muscular condition, and to avoid the accumulation of the products of fatigue.

THE PRACTICAL MANAGEMENT OF TYPHOID FEVER.

NAMMACK writes on this topic in the *Medical Record* of April 28, 1906. He states that special symptoms and complications in typhoid fever require the utmost watchfulness on the part of the physician. Headache in the first week is better treated by quietude, darkness, and cold locally, than by coal-tar derivatives. Sleeplessness may be persistent and exhausting and demand bromide or chloral. Opium has a bad influence upon digestion and the secretions in the early days of typhoid fever. Somnolence, stupor, and delirium must be treated by stimulants and external antipyretics, and a delirious typhoid patient must not be left alone for an instant. Tremor is an indication for the use

of alcohol and strychnine. Dry tongue and sordes will not be prominent if mouth disinfection has been carefully attended to. Vomiting, when occurring early, means either profound infection or extreme gastric irritability. Later in the disease it may be of uremic origin. Constipation, after the first week, should be treated by enemas cautiously given. Diarrhea may require change of diet, especially if much milk be taken, and full doses of bismuth combined with small doses of Dover's powder. If tympanites develop, in spite of the empty bowel treatment which he advises at the onset, the old-fashioned turpentine stupe, with perhaps turpentine enemas, will be useful. F. F. Caiger, in the Bradshaw lecture of 1904, advises oil of cinnamon (in doses of 2½ to 5 minims, every 2 to 4 hours in gelatin capsules or emulsion) for this unpleasant symptom, as well as for its influence as an intestinal antiseptic and its soporific effect in many patients. A rectal tube may be of service if the gas is in the lower bowel.

For intestinal hemorrhage occurring in typhoid, immobility, ice, and opium are the standing order of the writer. Latterly he has discarded the opium, because it masks the signs of perforation—which is apt to occur in hemorrhagic cases. These signs must be recognized promptly if the patient is to have any chance for his life. Ergotine, hypodermically, or adrenalin, now takes the place of opium, but it is extremely doubtful if any drug of the vaso-constrictor class has any real effect in checking intestinal hemorrhage. Collapse is best met by the subcutaneous injection of sterilized salt solution, about a pint being given in from two to four places. External heat, absolute quiet, absolute deprivation of fluids by the mouth, posture, and hypodermic injections of stimulants will all be required in addition; but we must carefully steer between overstimulation on the one hand and fatal syncope on the other. There is no longer any doubt about the necessity for surgical operation in cases of perforation, nor any wisdom in selecting cases for operation. Every patient should have this chance of rescue from certain death, and the only contraindication to operate is a moribund condition. Early diagnosis and early operation mean the saving of one-third of these cases, and the weight of opinion and experience is now against waiting until the second twelve hours. The symptoms of perforation should be constantly in mind in every case of typhoid, and should be promptly recognized before peritonitis supervenes to cloud the picture and to render surgical help futile. A peculiar change in the facial expression associated with a feeble running pulse and shivering often precedes the development of the characteristic pain. This pain is of sudden, severe onset and increasing intensity, localized at first in the right iliac fossa but soon becoming general. Tenderness and rigidity, followed by symptoms of collapse, and later by abdominal distention, make up a suggestive picture, but it is doubtful if there is a single distinctive symptom, although muscular rigidity newly arisen, with coincident increase in the pulse-rate, may furnish the key-note of diagnosis.

Conditions which may simulate perforation are pleurisy, pneumonia, cholecystitis, perforation or rupture of gall-bladder, acute gastrointestinal indigestion, iliac thrombosis, appendicitis, sloughing of a mesenteric gland, peritonitis, renal calculus, distended urinary bladder, rupture of an acute splenic abscess, and abdominal myositis. In cases of doubt it is better to operate, as typhoid patients stand exploratory laparotomy very well. Cases of peritonitis not due to perforation will not be injured by laparotomy. It must never be forgotten that perforation often occurs without the fulminant symptoms supposed to be characteristic.

Besides intestinal perforation, one other spectre stands by the side of every typhoid patient, and that is cardiac asthenia, due to poisoning by the typhoid toxins. The treatment of this condition consists in its prevention by elimination and support during the early stages. Once developed, its immediate outlook is bad, and its remote prognosis very uncertain.

The chest complications of typhoid fever may be overlooked if careful watch of the respirations, as well as of the pulse, is not kept up. In a case attended by a trained nurse, a bed-sore should not be accepted either as a symptom or as a complication of typhoid fever. It is neither. It is a blunder. A moderate range of temperature requires no treatment. High temperature does not demand either antipyretic drugs or guaiacol externally. Water will control it more easily and safely. The nervous symptoms of typhoid

will likewise respond to ice and water much more comfortably than to depressants, hypnotics, or opiates.

A NOTE ON THE TREATMENT OF CHOLERA BY SALINE INJECTIONS.

McCombie, of Upper Assam, India, in the *Lancet* of May 26, 1906, reports the results he has obtained by this method, and thinks it of interest to put on record the recent experiences of his partner, Dr. J. D. Gregorson, and himself with the saline treatment of cholera in a recent epidemic on one of the big tea gardens under their care. With the help of their able and energetic native helper, B. C. Dass, hospital assistant, they had a mortality of only 23.8 per cent out of a total of 105 cases, although two subsequently died from dysentery and two from tetanus some time after complete recovery from cholera; another dying from tetanus on the fourth day has been included in their cholera mortality. Of the 25 deaths from cholera, seven patients died immediately after admission before saline solution could be given. Only the worst of the other cases were treated by injection, 73 in all, among whom the mortality was 26 per cent, which may be regarded as a very satisfactory result.

Their general method of treatment is as follows: On admission the patient gets hypodermically from one-sixth to one-fourth of a grain of morphine, followed by 20 minims of spirit of ether every four hours, and perhaps digitalin, according to the pulse. Also by the mouth they give 10 grains of calomel and 10 grains of bicarbonate of sodium in one dose, and then the following mixture every three hours: Carbolic acid, 2 minims; bicarbonate of sodium, 10 grains; carbonate of bismuth, 10 grains; aromatic spirit of ammonia, 15 minims; spirit of chloroform, 10 minims; and peppermint water to make up one ounce. Hot-water bottles and friction to the extremities are also applied, and the patient is allowed to drink freely of water slightly acidulated with 20 minims of sulphuric acid to a pint. Then if signs of reaction do not appear, salt solution (60 grains to one pint of boiled water) at a temperature of from 105° to 110° F. is injected into the subcutaneous tissues over the axillæ, the breasts, and the epigastrium. As soon as the fluid ceases to flow readily into one place the needle is withdrawn and inserted into another, the swelling resulting from the injection being firmly rubbed to promote absorption. By this method they had no difficulty in getting large quantities absorbed; some of their cases had as much as nine pints and none less than two pints. The injection is continued until the pulse shows signs of improvement, and at any sign of failure it is recommenced.

This method of procuring rapid and continuous absorption seems to be the important point in the treatment, and to the fact that a sufficient quantity of fluid has not always been introduced must be attributed the unsatisfactory results which have formerly been obtained by this treatment. Hence this communication is made simply to draw attention to a very valuable method which seems, owing to its non-efficient use, to be becoming neglected.

The apparatus in its simplest form consists of a douche-can suspended at a height of from one to two feet above the patient, joined by a length of rubber tubing (with a clip) to a medium-sized aspirating needle. With ordinary antiseptic precautions they had only a few cases of abscess following injection, and unfortunately three of tetanus, but each of these had septic wounds elsewhere at the time which would have provided a suitable nidus for the bacillus tetani. One patient died on the fourth day after receiving his injection; he had sores due to scabies. One woman had ulcers on her leg and died three weeks after her cholera treatment, whilst the third, with an ulcer of the vulva, succumbed to lockjaw after seventeen days. Furthermore, all these three cases took place in one of the primitive houses of grass and bamboo, of which their temporary isolation hospital was composed, in the middle of a stretch of grass land ordinarily used as a grazing ground. This house was burnt down and no more tetanus occurred.

Two of the cases were tried intravenously with the addition of ten minims of adrenalin chloride (1 in 1000) to the pint of salt solution. The immediate effect was marvelous, one patient rousing from a pulseless, dying stage to absolute cheerful consciousness in half an hour. This man came in with dysentery and recovered. Three days later he was attacked

with cholera, was treated with adrenalin as above, and improved, but got a relapse on the third day, which was treated by salt solution subcutaneously. The attack left him very weak and exhausted, and he gradually fell into a dull, comatose condition, and died on the eighth day after his first attack of cholera. The other case tried with adrenalin died also in a relapse. A third case treated with simple salt solution intravenously did not recover. Adrenalin was also tried in 10-minim doses by the mouth, and the results were so good that they consider it worth further trial.

On another garden where cholera and choleraic diarrhea are always endemic during the hot weather, they had eight deaths out of 18 cases last year. This year, since the introduction of the saline treatment, they had 30 cases with only one death, while on a neighboring tea garden, where the saline treatment of cholera when properly carried out is of the greatest value in this very fatal disease, the average mortality works out at about 50 per cent.

THE ROLE OF PURE COW'S MILK IN INFANT FEEDING.

In an address published in the *Maryland Medical Journal* for June, 1906, JACOBI tells us that the modern experience in infant feeding with buttermilk seems to upset all the fine-spun theories of the laboratories. It appears to be proven by the results of Dutch peasants and many first-class European clinics that buttermilk —which, indeed, cannot be claimed to be like woman's milk, either physically or chemically—is an excellent nutriment in acute and chronic gastroenteritis of the young, in grave dyspepsia, in the chronic dyspepsias (for instance, of syphilis), and also in their healthy condition. Its percentage of sugar is only 2.82 to 3.5, of albumen 2.5 to 2.7, of fat only 0.5 to 1. Still, the infants thrive. The literature of the last few years, which has become quite extensive, and the names, many quite illustrious, of the sponsors of the buttermilk feeding prove it. They merely confirm the old experience of the Dutch peasant population.

The main recommendations in the use of buttermilk are as follows: It should not be taken from milk that has been standing longer than 24 hours; it should be boiled so slowly that after 25 minutes only there are a few ebullitions; a liter should be mixed, while being so boiled, with 10 or 12 grammes of farina or rice, and, finally, with 70 or 90 grammes of sugar. In order to reduce the casein to the finest possible coagulations the buttermilk while being boiled should be gently whipped.

Other positive rules enforced by Teixera de Mattos and many others are as follows: The carbohydrates must not be dextrinized. They must be flour, not malt. The sugar must be cane-sugar, not milk-sugar. There should be an addition of sodium chloride. The addition of fat is useless and may be dangerous.

Compare some of the figures referring to buttermilk with those of human milk and ass' milk. There are proteins in woman's milk 1.7 per cent, in cow's milk 3.5, in ass' milk 2.3, in buttermilk 2.5 to 2.7; fat in woman's milk 3.8, in cow's milk 3.7, in ass' 1.6, in buttermilk 0.5 to 1 per cent; sugar in woman's milk 6, in cow's milk 4, in ass' milk 6.2, in buttermilk 2.82 to 3.5 per cent. Of all these there is the greatest resemblance between ass' milk and buttermilk, both of which are vastly different from woman's milk. Why is it that both should have proven excellent nutriments for the infant? Is not all this rank heresy? Does it not conflict with the experiments and the dictates—mind, not to say experience—of laboratories? Does it not rather confirm all the observations and teaching of himself (Jacobi) these nearly 50 years? Does it not prove that nature is not plastic, and affords ample latitude in the choice of food, provided it be pure?

The cow's milk mixture which is to be administered to infants requires sugar, which makes it more palatable and less constipating, and restores, to a certain limited extent, the approximate composition of woman's milk. The latter contains 6 or 7 per cent of sugar, cow's milk only 3 or 4 per cent. Imagine your cow's mixture or dilution contains 50 per cent of milk; so there is only 1½ per cent of sugar in it. This sugar is milk-sugar. Now, should milk-sugar or cane-sugar be added?

Breast milk plunges into the infant stomach directly unchanged and sterile; cow's milk has to wait from 1 to 24 hours before it reaches the consumer. Its milk-sugar begins to be changed into lactic acid

immediately after milking. This lactic acid, together with the rennet of the stomach and the acids formed out of the fat of the milk, are the final causes of curdling. If you meet with a milk that is no longer alkaline—indeed, some milks are acidulated in the udder, and many more are amphoteric, that is, neutral—the decomposition of the milk is very rapid. It is true not all the sugar contained in cow's milk sent into the stomach is changed into lactic acid. Usually this change stops when one-sixth or one-quarter of the milk-sugar has been so changed. Only when an alkali is present in the stomach and neutralizes that lactic acid more of the latter is formed. Thus, indeed, the amount of lactic acid which is produced depends on the accident of an alkali being present or absent. That is why the routine use of sodic carbonate or bicarbonate may become a dangerous procedure. This fact appears to prove that a small amount of lactic acid suffices for the demands of normal digestion. That becomes more apparent when we learn that some of the milk-sugar passes through the intestinal tract undigested. Blauberg (Studien über Säuglingsfäces, p. 55) found the dried feces of the nursling to contain from 0.22 to 0.59 per cent of milk-sugar. This happens even to woman's milk-sugar. And Escherich found that peptones which form in milk while in the intestines previous to normal absorption are destroyed by acid fermentation, and concludes that for that reason alone another carbohydrate (*i.e.*, starchy food or cane-sugar) should take the place of milk-sugar in order to avoid an excess of lactic acid. Moreover, Dr. Helen Baldwin has published (*Journal of Experimental Medicine*, vol. v) investigations which prove the formation of oxalic acid as the result of intestinal fermentation. Thus, surely, it seems to be easier to give too much milk-sugar than too little, and it appears that the careful measuring and weighing of milk-sugar are of doubtful value, even though you know, or believe you know, that the milk-sugar of the market and the milk-sugar of woman's milk are identical, which they are not. All this refers to cow's milk that is obtained and utilized when still fresh. When it reaches the baby's stomach 10 or 24 hours old, with quantities of lactic acid formed, Escherich's warning is still more urgent.

Cow's milk keeps its casein in solution by its normal percentage of calcium phosphate. This is decomposed by the lactic acid of stale milk, or, when milk-sugar is added and is changed into lactic acid, the casein is thrown out and coagulated. Now, cow's milk has three or four times as much casein as woman's milk and only half as much as milk-sugar. This small quantity of milk-sugar allows the big mass of casein to be kept in solution. If you add the milk-sugar (or its lactic acid) of our chemical infant-feeders, the casein is no longer kept in solution, and is thrown out. One of the great dangers of infant feeding is the insoluble or curdled casein. The proper quantity of milk-sugar (the hobby-horse of our professional dieticians) to go with a cow's milk mixture ought to be enough, and no more, to keep cow's milk casein in solution, but not the large percentage of milk-sugar contained in woman's milk, which will prove excessive in its relation to cow's milk casein. It is only woman's casein that, though in a percentage three times smaller than that which is contained in cow's milk, is not thrown out by its larger quantity of (milk-sugar borne) lactic acid.

All of this proves again that the casein of the cow's milk and that of woman's milk are chemically different, and that the practice of adding the weight of milk-sugar required to keep woman's casein in solution is in excess of that which is tolerated by that of the cow.

THE TREATMENT OF PRURITUS ANI.

COWLES in the *New York Medical Journal* of May 5, 1906, asserts his belief that, generally speaking, cocaine, mercurial preparations, and carbolic acid give the most satisfactory results in pruritus. Cocaine acts well in suppositories, each containing one-half grain, or as a four-per-cent ointment. Caution should be observed not to induce the habit. The writer has obtained excellent results from the use of the formula as suggested by Morris:

℞ Acid. carbol., gr. xx;
Cocainæ hydrochlor., gr. x;
Petrolati, ℥j.

Of the hydrargyrates, a five-per-cent ointment of hydrargyrum ammoniatum in benzoated lard will be found to be a valu-

able remedy. In many cases the use of this preparation produces the most satisfactory effect. Calomel used as a dusting powder, as suggested by S. D. Johns, often brings decided relief.

Carbolic acid is one of the most reliable antipruritics that we possess. It is serviceable used alone in the form of a lotion, one to sixty parts or a five-per-cent ointment, and further it is an important adjuvant to many other preparations.

If there is much thickening of the skin surrounding the anus some preparation containing salicylic acid should be used. A good one is

℞ Acidi carbolici, gr. xv;
Acidi salicylici, gr. x;
Ichthyoli, min. xxiv;
Petrolati, q. s., ad ℥j.

The value of heat in relieving pruritus is universally recognized. A hot sitz bath or the application of hot compresses often confers immediate ease.

In conclusion it may be said that no case should be despaired of, for though frequently refractory, few are ultimately unamenable to treatment. It is necessary that changes in therapy be made from time to time, not only on account of the psychic effect, but in order that the potency of the remedial agents be maintained. It is further to be remembered that the practitioner who is most successful is the man who attends most closely to detail, studying each case as a distinct problem.

A FURTHER CONTRIBUTION TO THE STUDY OF UNTOWARD SERUM REACTIONS.

The *Journal of the American Medical Association* of June 2, 1906, calls attention to a valuable publication just issued from the Hygienic Laboratory of the Public Health and Marine Hospital Service. It is a noteworthy publication by Director M. J. Rosenau and Assistant Director John F. Anderson, dealing with an elaborate experimental study of a newly identified poisonous action of blood serum. This investigation concerns itself with the guinea-pig and the reaction of this animal to horse serum in particular, both fresh normal horse serum, old serum, dried serum, antitoxic (diphtheric) serum, and the so-called "refined and concentrated" antitoxin obtained by precipitating and dialyzing antidiphtheric serum. The authors have amplified and correlated observations already familiar to those engaged in the production of curative serums, to the effect that severe symptoms or even death occur in guinea-pigs once treated with horse serum, and, after a proper interval, subjected to a second injection of the same agent. They show by a series of brilliant experiments that this toxic action of horse serum bears a direct relation to the sequence of the injections and the interval between the first and second dose, which "incubation period" must not be less than ten days.

A primary injection, either subcutaneous or intraperitoneal, even in considerable amount, is absolutely innocuous; and if daily doses, or at least several doses, be administered during the critical period, harmful effects are avoided. Indeed, repeated injections with an interval of one or two days induced an immunity against the toxic substance in question. But if guinea-pigs are given a single large or small dose of horse serum, they become sensitized during the ten days or more, and when subjected to a second dose after this time has elapsed toxic phenomena indicating a profound effect especially on the respiratory mechanism appear, either with a rapidly fatal outcome or with symptoms of variable intensity leading to death or to recovery.

Emphasis is justly laid by Rosenau and Anderson on the fact that this phenomenon is in no way peculiar to ordinary diphtheric antitoxin. It is not evaded by antitoxin "refined" by the Gibson method, and is as readily provoked by normal horse serum, fresh, old, or dried. Much stress is attached to the statement, "Diphtheria antitoxin plays no part in this poisonous action and is in itself harmless." However, that the instructive experiments which are set forth in detail in their monograph have a bearing on the question of accidents in serum therapy in man is concluded by these investigators, though they do not assume that the reaction studied by them satisfies all the conditions met in human beings, and they agree that factors like "individual susceptibility" and status lymphaticus are not entirely ruled out of consideration. In any event these researches bring us a step nearer to the solution of the problem of serum complications and sequels, and along with a similar

fact brought out by von Pirquet and Schick indicate at least one point which can be applied in practice—that is, so to time the injections of curative serums as to avoid the possible danger of sensitizing a human being. In other words, in beginning serum treatment, one should either inject a massive single dose to allow of slow absorption and consequent immunity or repeat a smaller dose several times during the ten days constituting the "incubation" or critical period.

THE THERAPEUTICS OF ACUTE NEPHRITIS.

JENNINGS writes upon this subject in the *Detroit Medical Journal* for May, 1906. He believes that with the onset of an acute nephritis the patient should be given absolute rest in bed; even in the mildest cases this should be done, and except when convalescence is protracted the patient should be kept at rest until the albuminuria ceases. When permitted to be up, the patient should be carefully guarded against excess, and the effect of exercise upon renal excretion noted by repeated urinary analysis.

Von Noorden, Chittenden, and other recent experimenters have shown that the Voit standard diet with its 116 grammes of albumen and 3000 calories is an unnecessary excess for the maintenance of health and strength. They have shown that a man weighing 70 kilos, 154 pounds, will maintain his weight and strength with a diet containing but 50 to 60 grammes of proteid and yielding 2000 calories.

In one of Chittenden's experiments a man weighing 165 pounds and taking active exercise held his weight with a daily ration containing but 45 grammes of proteid and yielding but 1600 calories. These observations are not a surprise to physicians, familiar as we are with the limited amount of food consumed by patients with acute diseases. Just at the present time the author has a typhoid patient holding his nutrition well with a daily diet containing 30 grammes of albumen and giving a total yield of 900 calories.

From these facts it may be determined that for the few weeks of the course of an acute nephritis the proteids in the food may be reduced in the adult to from 30 grammes to 35 grammes, in a child of eight years to from 25 to 30 grammes, and in a child of four years to from 20 to 25 grammes. For the reasonable maintenance of nutrition a total caloric yield of 1500 for the adult, 1200 for a child of eight years, and 1000 for a child of four years will be ample.

It is now well understood that the kidneys excrete certain substances with more or less difficulty. The most important of these substances are urea, creatin, phosphates, and under certain conditions, water.

The foods which contain or produce these difficult excretable bodies are well known. Urea is a product of the metabolism of the proteids of the food. Proteids constitute a large percentage of meat and eggs. Milk of average composition contains four per cent of proteid. Creatin is a large constituent of meat extracts and broths. Phosphoric acid is contained in large quantities in nuts, yolks of eggs, milk, and many vegetables.

With these data it is not difficult to construct a dietary suitable for an acute nephritis.

For many years it has been the practice to give a strict milk diet. In the light of our later knowledge this practice must be revised. Milk alone is not a suitable diet for nephritis. It contains too high a percentage of proteid for the caloric yield, and has the further disadvantage of containing considerable phosphoric acid. A quart of milk, 1000 Cc., contains approximately 40 grammes of proteid with a total caloric yield of approximately 650. The quantity of milk sufficient to maintain even a fair nutrition would contain more than double the proteid a patient with acute nephritis should take. Milk, then, may form a portion of the diet, and the deficiency in calories may be made up by the use of foods rich in carbohydrates and fats and containing a small percentage of proteid, such as cream, butter, and the cereal products. Sixteen ounces of milk, 4 ounces of cream, 1 ounce of butter, 2 ounces of bread, and 1 ounce of sugar contain approximately 25 grammes of proteid and will yield approximately the 1000 calories necessary for the daily nutrition of a child aged four years. A diet suitable for other ages and conditions is easily constructed. For the first two or three weeks of an attack of nephritis, milk, diluted cream, and the cereal gruels should

constitute the diet. Later the solids may be added. Meat, eggs, meat broth, and vegetables should not be given until convalescence is well along. Additional articles of food should be given carefully and the effect on renal excretion noted. An increase or a return of the albuminuria will cause still further delay.

Such a diet is a suitable one for the milder cases in which the dropsy is not severe and the kidneys secrete fairly well. In all severe cases with very scanty urine or suppression and an increasing dropsy, absolute starvation is imperative for a few days until the danger period is tided over.

One of the most important observations made by von Noorden in the therapeutics of renal diseases is that under certain conditions the kidneys excrete water with great difficulty, and during periods of great engorgement with suppression they are practically impervious to water. When this condition is revealed by an arrest of secretion the administration of fluids should be restricted to the lowest possible amount; only that should be given that is absolutely necessary for nutrition, and it should not exceed 1200 Cc. Nature often gives us a therapeutic hint by the establishment of emesis. Often every particle of water put into the stomach is immediately rejected.

THE PLASTIC RENEWAL OF THE EDGE OF THE NASAL SEPTUM.

After reviewing the various operations proposed for the renewal of the septum cutaneum TEXER (*Deutsche Zeitschrift für Chirurgie,* lxxxi, 5) describes his own operation.

He cuts from the center of the mucous membrane lining the upper lip a V-shaped flap with the base toward the teeth and the apex at the lip. This flap is dissected free except at the base and laid down along the teeth, and the edges sewed together except at this point. The skin and muscles of the upper lip are then cut through at the base of the nose and the flap drawn through the cut and the apex sewed to a freshened spot at the tip of the nose. The edges of the wound in the lip are drawn together by suture. The flap after exposure for a short time assumes the color of the skin and loses its redness. Illustrations fully explain the text.

THE USE OF CLAMPING FORCEPS IN SUTURING WOUNDS.

Spring forceps held shut by a catch are used by SCHULTZE (*Deutsche Zeitschrift für Chirurgie,* lxxxi, 5) for holding wounds in apposition while suturing. In the present article, which can hardly be understood without the illustration, he describes the use of the forceps in plastic and abdominal operations.

INJURIES OF THE CARPUS.

Incorrect diagnosis is very common in these conditions, according to DELBET (*Tribune Médicale,* No. 19, 1906), who speaks of three varieties or degrees: (1) Simple fracture of the scaphoid bone which is generally not due to direct trauma, but is an avulsion of the neck from muscular action. (2) Luxation of the os magnum, which passes behind the semilunar, which retains its normal relations. This is often called dislocation of the semilunar, but in reality the semilunar and often the pyramidal bone also follow the os magnum. There may be an associated fracture of the scaphoid. (3) The os magnum is forced back until it comes into contact with the radius; the semilunar is completely reversed, and lies with the concavity forward or even upward. The fibrous tissue of the radio-semilunar ligament is not torn.

The symptoms are: (1) Pain from pressure on the median nerve. (2) Silver-fork deformity in the hand. (3) The hand is extended and the fingers slightly flexed.

Treatment consists in manual reduction in the first two types. In the third operative reduction is required, and where there is fracture of the carpal bones it is best to cut down and remove the fragments. If the semilunar is entirely displaced it should be removed. Delbet did this in three cases with good functional results.

TONSILLAR ABSCESS—TREATMENT BY TONSILLOTOMY.

When an abscess develops after tonsillitis SOMMER (*Münchener medicinische Wochenschrift,* No. 11, 1905) performs tonsillotomy, and thus opens the abscess without endangering the blood-vessels or other structures. He prefers local anesthesia by means of cocaine.

CONGESTIVE HYPEREMIA IN ENDOMETRITIS.

To cause hyperemia of the endometrium TURAN (*Centralblatt für Gynäkologie,* No. 12, 1905) uses a uterine catheter provided with a close-fitting rubber-lined metal saucer which can be pushed along the catheter and fixed at any desired distance from the end. At the inner end of the catheter four slits 3 centimeters (1 1/5 inches) long are cut, and a hole is cut in the end, all of which allow suction to be applied to the endometrium. An air-tight closure at the cervix is assured by the rubber-lined saucer.

The saucer being fixed at the desired depth, the air-pump is attached to the outer end and the instrument inserted in the uterus. Air is now pumped out until the saucer is drawn tight up against the cervix, and the apparatus left for five to twenty minutes. It is better to attach the pump by a T-shaped tube to the other arm, on which a manometer is secured to measure the negative pressure. In four chronic cases of from four to twelve years' duration marked improvement was brought about by twenty applications given every other day with the exception of menstrual periods.

TUBERCULOUS ARTHRITIS—TREATMENT BY PASSIVE MOTION AND MASSAGE.

Subcutaneous joints are most adapted to the treatment used by SAQUET (*Annales de Chirurgie et d'Orthopedie,* No. 4, 1906), which consists in mild superficial frictions and rubbing and in slow movement of the affected joint. The procedures must not be severe enough to cause actual pain, or they may do harm. Mobilization under chloroform is rarely beneficial. The joint is kept quiet between treatments, which are given every day or every other day. There is no danger of dissemination of the germs during these maneuvers as there is by curettage, etc. The duration of treatment is from three to six months, and the result is usually perfect cure without stiffness. The author reports ten cases treated successfully in this way.

The important point in the use of the massage is that it shall be soothing and never painful. Pressure must not be deep enough to bruise the joint. Its effect is trophic rather than mechanical, and is manifested largely on atrophic muscles in the neighborhood. The passive motions must not be at all rapid nor forcible, and must never cause pain or put any marked tension on the tissues of the joint.

CONGENITAL INTESTINAL ATRESIA—DIAGNOSIS FROM MECONIUM.

An interesting suggestion is made by WALZ (*Münchener medicinische Wochenschrift,* No. 21, 1906), who deplores the fact that these cases are invariably fatal, and that the diagnosis is never made early if the stenosis is high enough in the bowel to permit the formation of meconium.

The meconium is formed from solid matter, especially epithelial cells, lanugo hairs, and caseous matter, from the amniotic fluid, and also from the intestinal secretions. If the atresia is in the duodenum the latter will be present in sufficient amount to simulate normal conditions, so that the presence of meconium is not a certain sign of absence of atresia. In normal meconium, however, large numbers of hairs are found, but if there is complete stenosis occurring before the end of the fifth month of intrauterine life these will be absent.

The only constant sign of atresia is vomiting, and the meconium should therefore be examined in all cases of continued vomiting in new-born infants.

RETROVERSION—TECHNIQUE OF SHORTENING ROUND LIGAMENTS.

The Alexander-Adams operation is described by WEYDLICH (*Prager medicinische Wochenschrift,* No. 21, 1906) as follows: Disinfection as usual. Incision three inches long parallel to Poupart's ligament and a fingerbreadth above. The aponeurosis of the external oblique is exposed, and the finger, wrapped in gauze, is forced against the pubic bone and the external inguinal ring brought into view. The tissues in front of it are seized with forceps, and tension being made on them the round ligament appears as a tense cord. This is exposed by splitting its aponeurosis and separating all adherent muscle fibers. The visible portion of the ileoinguinal nerve, which

interferes with drawing the ligament out, is resected. As the ligament is drawn forward a resistance is soon felt, and the end of the canal of Nuck appears and should be pushed back without opening it; if the peritoneum is torn it is immediately closed with catgut. When a portion of the ligament four to five inches long has been drawn out, it is held tense, and the fascia of the external oblique muscle having been separated along the entire incision, three aluminum bronze sutures are passed through the external oblique muscle, the ligament, and Poupart's ligament. A strong catgut suture is passed through the external oblique, the round ligament, and the periosteum of the posterior surface of the pubic bone. The sutures are then tied, drawing the muscle over the round ligament. The peripheral part of the ligament is resected. The fascia and skin are then closed separately. The operation is of course performed on both sides.

In the same number Maly gives about the same technique.

If the round ligaments are small and weak at the external ring, Weydlich states that they increase steadily in size as they approach the uterus, and will be found large enough at the internal ring to withstand any necessary traction. If they are not easily found he also advises finding them at the internal ring.

ABSENCE OF THE VAGINA—NEW PLASTIC OPERATION.

The operation proposed by FEDEROW (*Centralblatt für Gynäkologie,* No. 20, 1906), and used by him on a case of congenital absence of the vagina, uterus, and ovaries, depends on the removal of a rectangular flap from the anterior wall of the rectum above the internal sphincter.

A semicircular incision following the posterior ends of the labia majora is carried down until the anterior wall of the rectum is reached. This is then separated, and at a sufficient height a flap of a rectangular shape with three sides cut free but attached below is made in the anterior wall of the rectum. The semicircular flap of skin and vaginal mucosa is then freed and pushed into the space in front of the rectum, and the rectal flap being drawn down is sewed by its edges in such a way that the sides are joined to the skin from the labia which forms the lateral walls of the vagina. The upper edge of the rectal flap is cut through and sewed to the apex of the semicircular flap, and the original upper border of the rectal flap is brought down and sewed to the skin from which the semicircular flap was cut. Nothing is said about the method of closing the opening in the rectal wall, but it is implied that the wound is closed by simply drawing the edges together, making the rectum here only half its former circumference. The operation ends with such perineal repair as may be required.

In the case reported a rectal fistula was left, but it closed spontaneously.

PYELONEPHRITIS—DIFFICULTY OF DIAGNOSIS.

The variability of the pain is the most striking fact brought out by TASSIN (*Tribune Médicale,* No. 19, 1906). He describes three types of case: (1) Pain like renal colic, the usual form. (2) Cystalgia, which frequently leads to a false diagnosis of cystitis, and has led to vesical lavage being used for weeks without benefit. (3) Abdominal pain, which may be in the kidney or any part of the ureter, or may radiate to the anus or thigh, or there may be reflex pain in the other kidney. He also mentions errors due to pain apparently in the kidney occurring in disease of the bladder or ureter. The other symptoms are those usually described, but stress is laid on irritability of the bladder, which is worse at night—"nocturnal pollakiuria."

SUTURE OF HEART—INFECTION FROM PLEURA.

A stab wound three-fifths of an inch long in the right ventricle was operated on by DOLCETTI (*Centralblatt für Chirurgie,* No. 20, 1906) one hour after the accident. The hemorrhage occurred into the left pleural cavity, which was also wounded, and which was first opened at operation. When the heart was exposed it stopped beating, but after three sutures were made cardiac massage started the pulsations again. The wound was closed, but the patient, after recovering from the effects of the operation, died eight days later from infection of the mediastinum and peritonitis.

GASTROENTEROSTOMY—NEW TECHNIQUE.

To make the fistula between the stomach and intestine after sewing these together is the purpose of the instrument described by JOSEPH (*Centralblatt für Chirurgie,* No. 20, 1906). The instrument is a forceps with long fenestrated blades like a phimosis forceps. One of the blades carries a slide to which is attached a knife-edge which plays back and forth in the groove when the forceps are closed. To use them, a small opening is made in each of the parts to be connected, a blade slipped into each, and the forceps closed. The peritoneum is sewed around the forceps. The slide pushes back and forth, cutting through both walls. The forceps are removed and the small openings closed. The method prevents escape of intestinal contents. The instrument is pictured.

DISEASES OF THE NOSE AND EAR—TREATMENT BY ASPIRATION.

For making vacuum suction on the ear and nose GUYOT (*Revue Médicale de la Suisse Romande,* No. 5, 1906) recommends replacing the usual specula which are designed to go inside the ear or nose, and are closed at the outer end, by a large hemisphere or pyramid which fits over the ear or nose, enclosing the entire outer structure.

CARCINOMA—TREATMENT BY ANTITOXIC SERA.

The peculiarity of the injections used by LE YOUX (*Anjou Médicale,* No. 4, 1906) is that antitoxic sera of any sort, diphtheria, tetanus, etc., gave good results.

Every week 10 cubic centimeters of serum is injected through sound skin near the tumor, toward which it is pointed. The injection is made slowly, and if there is any resistance to the flow, the syringe is withdrawn and the needle inserted elsewhere, perhaps at the opposite pole of the cancer. Each injection is made in a different place, so that the entire tumor is surrounded. The fluid is injected as close as possible to the tumor, and if possible below it.

The results have been good in all cases, the cancer diminishing in size and the general condition improving. Sometimes one form of serum did good after another had ceased to have any effect. The beneficial effect in any case is apparently only temporary.

ON THE SENSIBILITY OF DIFFERENT ORGANS AND TISSUES.

LENNANDER's well known observations on the abdominal viscera and peritoneum, which have been universally confirmed by other clinical workers, lend additional interest to his latest communication (*Gazette des Hôpitaux,* Paris, 1906, April 3 and 5; quoted in *Edinburgh Medical Journal,* June, 1906) to the effect that the body is enclosed in an enveloping skin which reacts almost everywhere to pain, pressure, heat, and cold, although its reaction is of unequal intensity at different points. The sensibility of the muscles and aponeuroses is comparatively less acute.

The parietal pleura, the parietal peritoneum, and their subserous layer, the periosteum, and the synovial membranes of joints, all possess marked sensibility to pain, but they do not react to pressure, heat, and cold. The most painful maneuvers are dragging movements, lacerations, pressure of serous cavities or periosteum against resistant structures, such as aponeuroses, ligaments, or bones.

On the other hand, bone, cartilage, the brain, the lungs, the heart, the blood-vessels, the thyroid gland, the liver, the spleen, the pancreas, the renal parenchyma, the internal genital organs of the female, the parts of the testis covered by serous membrane, do not appear to possess any of the four forms of sensibility. This the author regards as less absolutely proven concerning the stomach, the intestinal canal, and the gall-bladder. He holds that the opinion that these organs become painful when in a pathological condition—*i.e.,* when inflamed—is untenable.

The ground taken is to the effect that all organs innervated solely by the sympathetic nerves or by the vagus (beyond its recurrent branch) are devoid of four forms of sensibility, namely, to pain, pressure, heat, and cold, and that all the sensations usually assigned to them have their seat in the nerves of the parietal subserous tissue. This teaching has a distinct practical bearing, since it enables

the surgeon to perform extensive operations under local anesthesia, or if a general anesthetic be administered, to discontinue this after the viscera have been thoroughly exposed by the parietal incision.

Lennander notes that the walls of the vagina are not sensitive to incision or pinching or contact of the thermocautery or the electrodes of the faradic pile. If, however, the electrodes are brought near to the vulva and to the front of or to the side of the urethra, the electric current is acutely felt. Moreover, if an incision be carried through the vagina into the bladder, the patient suffers.

In regard to the kidney, this organ is entirely non-sensitive to puncture, but if the mucous membrane of the renal pelvis be traumatized the patient will suffer severely. Indeed, this is well shown by the effect of distention.

He notes that the ileocecal valve is entirely non-sensitive, and believes that the pain and tenderness of appendicitis is due to traction or pressure involving the sensitive nerves of the retroperitoneal subserous tissue.

PERITONITIS DUE TO PNEUMOCOCCUS —ACUTE FORM.

A case is reported by PATRY (*Revue Médicale de la Suisse Romande,* No. 5, 1906) in which recovery followed laparotomy. A girl of five years suffering from symptoms of acute peritonitis for four and a half days was operated on, and the intestinal peritoneum found covered to a remarkable extent by adherent false membrane. There was little tendency to localization, but what was supposed to be the appendix was found swollen and much inflamed and was removed. It was found later to be the Fallopian tube and ovary. The abdomen, which contained five fluid-ounces of seropurulent fluid, was flushed with salt solution and closed with drainage. The child was kept lying on the face for the sake of drainage. Recovery was interrupted by the emptying of a localized abscess through the stomach by vomiting, and by the occurrence of pleurisy and double pneumonia, but a month after the operation the patient was completely well.

The case suggests the possibility of making a diagnosis of pneumococcus peritonitis, based on the following points: (1) The absence of constipation, diarrhea being the rule. (2) No fall of temperature as in perforation. (3) No signs of appendicitis. (4) Operation was still possible after four and a half days of peritonitis.

Another form of peritonitis due to pneumococcus occurs, but it runs a slow course and diagnosis is not so difficult.

The author recommends early operation with drainage, and especially the ventral position proposed by Küstner, to facilitate the escape of fluids through the opening in the anterior abdominal wall.

CHRONIC CATARRH OF THE LACRIMAL SAC.

In ambulant cases ULBRICH (*Prager medicinische Wochenschrift,* No. 18, 1906) has discarded the old method of treatment by means of sounds left in a short time and has devised a method by use of permanent sounds.

After dilating the tear duct from the eye to the nose, he passes a permanent metal sound of suitable diameter into the lower canaliculus and through the lacrimal sac into the nasal duct. The upper end of this sound is bent at an acute angle to prevent its slipping out of the eye. The sound remains in position four weeks, and during this time the lacrimal sac is emptied by the patient, who is shown where and how to press on it. This method is generally successful. If it is not the sac must be extirpated, and if dribbling of tears is annoying after several months, the lower part of the lacrimal gland should be removed. This is better than the use of caustics.

GALL-STONES—A NEW IDEA OF THEIR CAUSATION AND TREATMENT.

The influence of thyroid insufficiency in the etiology of gall-stones is considered at length by LORAND (*L'Union Médicale du Canada,* No. 5, 1906).

Thyroid insufficiency entails a greater liability to infection in general, a lessening of resistance toward all microörganisms, and as infection of the biliary passages is one of the most important causative factors in cholelithiasis, the effect of this loss of resistance is evident. In addition there is a tendency to diminution

of secretion of most of the glands when the thyroid is insufficient, and this affects the liver to an extreme degree, entailing a great diminution in the secretion, and therefore in the flow of bile. As biliary stasis is the second factor in the origin of gall-stones the influence in this direction is also evident. Other factors favoring cholelithiasis, namely, constipation, muscular weakness, and fatty change in the liver, also result from lack of thyroid secretion.

The relation of the thyroid gland to the sexual apparatus of woman has been recognized for a long time. There is a tendency to enlargement of the gland during pregnancy, and to a functional atrophy during lactation and at the menopause. Symptoms of thyroid insufficiency frequently occur after double ovariotomy. When we unite these facts to the fact that gall-stones are more common in women than in men, and that they are most common after the menopause, we find great support for this idea, which is also given by the frequent association of cholelithiasis and myxedema.

The treatment consists in combating the effects of thyroid diminution, especially the asthenia and the constipation. These are relieved by the use of large amounts of vegetable food and mineral waters associated with exercises.

BONE CHANGES IN SCOLIOSIS.

Skeletons of scoliotics in the Dupuytren Museum were carefully studied by Desfosses (*Presse Médicale,* No. 38, 1906) with the view of confirming the theory of muscular weakness on the convex side by showing smaller protuberances or muscle attachment.

He found, however, that in all cases the bones were larger and better developed on the convex side, and that the curve of the spine was due to the fact that the bones were higher and larger on that side. He concludes that scoliosis is due to a disease of some sort occurring during childhood, limited to, or most marked on, one side of the body, and leading to a lack of proper development of this side, causing the body to lean toward the affected side.

His idea thus differs from the prevailing one in considering the weaker side to be the concave one. This view is supported by the fact that several cases of paralysis of childhood (acute anterior poliomyelitis) have been reported in which scoliosis followed, the concavity being toward the most affected side. The article is well illustrated by drawings of asymmetric skeletons, showing especially difference in the size of the ribs in those cases affecting the dorsal region. The condition can be recognized by *x*-ray photograph during life, and Desfosses recommends taking such a photograph in all cases before commencing exercises designed to strengthen the convex side of the spine.

FRACTURE OF GREATER TUBEROSITY OF THE HUMERUS.

This fracture should be looked for, according to Meszytka (*Deutsche Zeitschrift für Chirurgie,* lxxxii, 1), in all cases of injury of doubtful nature to the shoulder. It ordinarily follows direct trauma and presents the aspect of subluxation, but can only be recognized positively by the *x*-ray. This should be taken with the patient lying on the back, the injured shoulder slightly raised by a cushion, the arm adducted and strongly rotated outward and firmly fixed to prevent motion and the movement from respiration.

Treatment should be mechanical, and operation is unnecessary if not harmful.

PRIMARY SARCOMA OF THE KNEE-JOINT.

Sarcoma of the capsule or ligaments of the knee is rare, according to Ruediger-Rydiger (*Deutsche Zeitschrift für Chirurgie,* lxxxii, 1, 1906), but should be easily recognized.

The usual form causes a diffuse enlargement of the joint, with effusion, floating of the patella, and a particular tendency to filling up of the quadrangular space behind the joint. In spite of the swelling there is little or no limitation of motion, no grating, and no loss of power to walk on the limb. Muscular atrophy and articular pain are also absent. Puncture draws off blood or bloody serum, never pus. *X*-rays show no change in the bones. The absence of constitutional disturbance and of enlargement of the inguinal glands and the long course are also characteristic.

These features serve to distinguish the above described form, which is the usual type. A form occurs in which there are only small nodules. This cannot be distinguished from fibroma clinically.

Treatment consists in resection of the joint and extirpation of all masses. Curettage is insufficient, and amputation rarely necessary.

ECLAMPSIA—RENAL DECAPSULATION.

A successful case is reported by POERSSON and CHAMBRELENT (*Annales des Maladies des Organes Génito-urinaires,* No. 8, 1906) in which after two days of complete anuria and coma following delivery of a still-born infant, the flow of urine was established after decapsulation of one kidney and splitting of the other. The split kidney began to secrete urine first, but in twenty-four hours both were secreting, and two days after the operation consciousness returned. Recovery was uneventful, and a year later there was no albumin in the urine.

In acute cases of anuria it is best to operate on both kidneys, and to split at least one, as secretion occurs more promptly after this operation.

THE EFFECTS OF X-RAYS ON GROWTH.

The effect of *x*-rays on growth of young animals was determined by FÖRSTERLING (*Centralblatt für Chirurgie,* No. 19, 1906). If parts of young animals were exposed to the rays from a tube 20 centimeters (8 inches) distant for about ten minutes, the exposed parts remained permanently smaller. If the entire animal was exposed it did not develop properly and generally died young. The younger the animal the greater the effect. Rabbits twenty-seven hours old were exposed from five to eighteen minutes, and two months later were 50 to 150 grammes (2 to 5 ounces) lighter than the control. If half the body were exposed, that half grew less, and even the paired viscera, kidneys, etc., were smaller. One hind leg of a dog eight days old was exposed ten minutes, and seven months later the limb was 9 centimeters (3½ inches) shorter than its fellow. The author warns us against exposing the limbs or bodies of children to the influence of the rays.

FRACTURES OF THE OS CALCIS.

These are of two sorts, according to VOECKLER (*Deutsche Zeitschrift für Chirurgie,* lxxxii, 1, 1906), namely, muscular fractures breaking off the posterior end of the bone at the attachment of the tendo Achillis, and fractures by crushing, involving the body of the bone. *X*-rays have shown that this fracture may occur without injury of other bones. The pain is severe at first and is more increased by adduction and abduction of the ankle than by flexion and extension. This distinguishes it from fracture of the astragalus. In old cases there is extreme pain on standing on the foot and a tendency to flatfoot. The ankle is increased in thickness and the grooves alongside the tendo Achillis filled up. The malleoli are nearer the floor than those of the other foot.

TUBERCULOSIS OF BURSÆ AND TENDON SHEATHS.

STEWART (*American Medicine,* April, 1906) summarizing an article on this subject holds that correct diagnosis and proper treatment are imperatively demanded to avoid disaster. Excision and primary healing is the ideal operative procedure in all cases. Incision, evacuation, carbolization, and primary union can be substituted for excision in many cases of tendosynovitis, with equally good, or even better, results.

VINCENT'S ANGINA.

Under this heading LADD (*Cleveland Medical Journal,* June, 1906) describes an inflammatory pseudomembranous affection of the throat closely resembling diphtheria, which has been particularly studied and described by Vincent. It is especially frequent in childhood and rare after the thirty-fifth year, and comprises a little over two per cent of all types of angina in adults. Those working about anatomical laboratories are said to be particularly affected.

The disease exhibits ulcero-membranous and diphtheroid types, the former being a common variety.

It begins as a rule in the upper angle of the tonsil as a gray membranous area of necrosis, and bleeds readily on slight traumatism. This is followed by a

crater-like ulcer covered with necrotic tissue, fibrinous exudate, pus, and saliva.

The symptoms are those of a subacute sore throat. The duration is from a few days to six weeks.

In the diphtheroid form there is no ulceration, but simply a membranous inflammation in which the fusiform bacilli are exceedingly abundant.

The diagnosis of Vincent's angina is made by careful microscopical and bacteriological examinations of scrapings taken from the floor of the ulcerating surface. Smears made from these scrapings show numerous fusiform bacilli and spirochætæ. These can also be recovered from many normal throats or those afflicted with inflammation in other forms.

Treatment consists of local applications of iodine, silver nitrate, or other antiseptic solution in conjunction with frequent gargles, and the observation of a moderate degree of quarantine until the throat clears up.

THE DIAGNOSIS AND TREATMENT OF TYPHOID PERFORATION.

WOOLSEY (*Annals of Surgery*, No. 5, 1906) notes that in accordance with figures based upon the percentage of perforation, about 25,000 people die annually from this complication of typhoid fever, and that one-fourth of these might be saved if promptly operated upon. The mortality of operation based on Harte's and Ashhurst's estimation is about 75 per cent. Woolsey believes this is low, since a statistical study necessarily omits many of the unsuccessful cases.

The results of surgical intervention have been better in recent years mainly because of early diagnosis and early operation; incidentally because of improvement in surgical technique.

Perforation is most likely to occur in severe cases and in those exhibiting marked distention and hemorrhage. Nor is it uncommon in walking cases. It is due at about the third week, though it may occur at any time.

Of Woolsey's seventeen hospital cases there was only one constant symptom, which was severe, sudden abdominal pain. Two of the cases did not exhibit this symptom. Tenderness and rigidity were not so common at the onset. In at least two of Woolsey's cases there was entire absence of rigidity; this together with tenderness is a sign of peritonitis and does not develop until the peritonitis sets in. In none of the cases was there any initial fall of temperature. The leucocyte count was not of much assistance; in no case was it very high, and in most of them it remained low. Late symptoms make the diagnosis fairly obvious.

Woolsey states that we need nothing more than the characteristic pain, tenderness in a fixed spot, and rigidity to indicate an immediate operation, and that we need not require both the tenderness and rigidity to be present before proceeding to an exploratory operation. The latter is quite safe, far safer than a fatal delay, and one may perhaps anticipate perforation, and by infolding the intestine over the sloughing base of an ulcer prevent it. In one case the author had the experience referred to, when, owing to the absence of rigidity and marked tenderness, he delayed operation when perforation existed. He did an exploratory operation when there was merely a strong suspicion of perforation on the part of the medical staff. The patient at the end of the second week of the disease complained of sudden, severe abdominal pain and considerable tenderness in the right lower quadrant, and there was diminished abdominal respiration. No rigidity or other symptoms were present. On operation no perforation and no peritonitis were found. As a result of an appendicectomy and salpingectomy done four years before there were several bands of adhesions, binding the ileum into the pelvis, which were freed. One of these was adherent to the ileum at the situation of an ulcerated Peyer's patch, and, together with the neighboring intestine, was quite congested. After operation the patient was free from pain and tenderness and made an uninterrupted convalescence. In another such case operated on by Dr. F. Tilden Brown no perforation was found, and the temperature fell to normal the next day and continued so. The author has explored through an incision under cocaine anesthesia and found no free gas, fluid, or other signs of peritonitis, and hence excluded perforation. In such cases one can exhaust a sterilized catheter passed to the bottom of the pelvis to determine the absence or character of free fluid.

As to anesthesia, Woolsey much prefers general anesthesia. These cases take gas and ether well, and the latter is a heart stimulant. With cocaine anesthesia the incision is painless and the procedure satisfactory for the purpose of exploration to determine whether free fluid or other signs of perforation or peritonitis are present. But retraction of the edges and the necessary handling of the inflamed intestines are painful, and this, together with the realization of being subjected to operation, in spite of a blunted sensibility, causes more shock than the same operation under general anesthesia.

As the lower three feet of the ileum is by far the most frequent site for the perforation—in 95.5 per cent according to Haggard, while according to Harte 73 per cent were in the lower twelve inches—the incision should be placed so as to readily expose this part. Woolsey prefers the incision through the right rectus, as the lower end of this allows better drainage of the pelvis than the right oblique incision. For getting rid of the more or less free fluid present, irrigation with a large amount of hot normal saline solution is best.

Anderson, believing that the cause of death after operation for typhoid perforation is toxemia from the contents of the paralyzed bowel, recommends that the ileum be emptied of its contents and the bowel itself irrigated through the perforation and through special incisions. He has used this method in nine cases with satisfactory results. The chief objection lies in the time required, as it is generally agreed that a short operation and an early operation are two of the essential requirements for success.

In the table of seventeen hospital cases four recovered, a mortality of 76.4 per cent. Of Woolsey's six hospital cases two recovered, a mortality of 66.6 per cent, or, including one previous case operated on in private for septic peritonitis of origin unknown to the two eminent consultants who saw the case three hours previously, a mortality of 71.4 per cent.

Of the cases that died, the first died on the table while infusion was being given. Operation had been made possible only by a clysis given just before. Fifty-two hours was the longest that any fatal case survived the operation.

The percentage of recovery in cases of children from six to fifteen years is about twice that of adults.

The author emphasizes the value of severe pain of sudden onset in the lower half of the abdomen as an early sign of perforation, and its increased value as an indication for operation when associated with localized tenderness and rigidity. He also insists upon the importance of exploratory operations in case of doubt in view of the good results which follow if no perforation is found, and of the earlier period at which the operation is done if perforation is present.

THE TREATMENT OF MEDIASTINAL CARCINOMA WITH THE ROENTGEN RAYS.

PFAHLER (*Pennsylvania Medical Journal,* June, 1906) has treated six cases of carcinoma of the mediastinum secondary to carcinoma of the breast. In all there was improvement. Three cases apparently got well, or nearly so. There was certainly in every instance, saving those who had already reached the last stage, marked amelioration of symptoms and prolongation of life. Treatment should be given daily at first; later three times a week.

TENDON AND MUSCLE TRANSFERENCE.

BRADFORD (*Cleveland Medical Journal,* June, 1906) contributes an article based upon the experience at the Boston Children's Hospital in the last twenty years, and representing an inquiry into the final results of a considerable number of cases. The methods employed may be summarized under the general headings tendon and muscle lengthening, shortening or transference, tendon grafting and fixation.

Tendon lengthening is accomplished by Z-shaped tendon incisions, repeated side incision and stretching, lengthening by tendon flaps, and the utilization of silk strands. Muscle lengthening is secured by stretching the elastic portion of muscles after dividing the encasing of intramuscular fascia, and serves especially in spastic conditions incident to cerebral palsies.

Tendon and muscle shortening is accomplished by division and side apposi-

tion by means of suture. Tendon implantation or grafting into the periosteum seems to give better results than insertion into another tendon.

Lange's demonstration that transferred silk strands become centers of reorganized tissue, which form firm and useful tendons, is extremely serviceable to the orthopedic surgeon.

In extensive paralysis, where tendon transference is impossible, tendon fixation can be used to advantage, preventing the development of distressing foot deformities and also securing serviceable limbs.

Arthrodesis, or the production of ankylosis by the removal of the cartilage, is sometimes required, but should not be applied to young children.

In palsy involving the foot and ankle the object of treatment is to give sufficient stability to the foot to enable the patient to walk without great difficulty. This requires that firm attachment should be made at five points: at the end of the os calcis, at the outer and inner side of the mid-foot, at the outer and inner side of the anterior portion of the foot. In extensive palsy a tendon grafting does not give sufficient strength to the resulting tendon to insure permanent results. It is therefore necessary to transfer the whole or the greater part of a strong muscle and make a periosteal insertion. If the entire anterior tibial groups are paralyzed the peroneus may be transferred and inserted, or even a split portion of the tendo Achillis or one of the flexors. In the latter case silk strands are necessary to lengthen the tendon.

Bradford gives a tabulation of procedures applicable to paralytic deformity which is extremely serviceable to those not familiar with the recent orthopedic advances in this direction.

INTERSCAPULOTHORACIC AMPUTATION FOR SARCOMA OF THE SCAPULA.

DOUGLAS (*New York Medical Journal*, June 9, 1906) reports a case in which this operation was performed. The patient, thirty-seven years old, nine months before admission suffered from stiffness in his left shoulder, especially in the morning; after using the arm the stiffness would improve. This was chiefly followed by pain of a boring, darting character, running down the arm, worse at night and most marked in the bend of the elbow, so that three months before coming under Douglas's care he was unable to raise the arm above his head. About the same time he noticed the shoulder was becoming larger.

Examination showed a mass, the size of an orange, which could be felt in the axilla and beneath the pectoralis major and minor muscles. It was apparently adherent to the anterior surface of the scapula. The mass was tense, not hard or fluctuating, and only slightly tender. Removal of a portion of this growth through an exploratory incision showed it to be a giant-cell sarcoma.

Interscapulothoracic amputation was performed, following with a few modifications the method suggested by Berger in 1887. The successive steps in the operation consisted in the incision over the clavicle; subperiosteal resection of its outer two-thirds; ligation of the subclavian artery and vein; division of the pectoralis major and minor muscles; injection of the brachial plexus with a one-per-cent cocaine solution; shaping of the flaps while giving the cocaine time to "block" the nerves; division of the plexus; division of the latissimus dorsi; turning back of the arm and scapula; division of the muscles attached to the scapula; hemostasis, particularly of the scapular vessels and those of the chest wall; and suture of the wound with a drain of rubber tissue at its lower angle. The drain was removed at the end of thirty-six hours, and union was by first intention. The patient was allowed to leave his bed on the sixth day.

The original method suggested by Berger was resection of the middle one-third of the clavicle, and this method seems to have been followed by most operators. Le Conte, in 1902, and Berger in a recent article advocated the removal of the entire clavicle. This seems to add to the danger of injuring the pleura, and sufficient room to reach the vessels, even when they are displaced by the tumor as in the present case, is obtained by a subperiosteal twisting out of the outer two-thirds of the clavicle with immediate division of the pectoralis major muscle.

Berger notes that in sixty-four amputations for sarcoma of the humerus there was a mortality of 3.12 per cent; in

thirty-five cases of sarcoma of the axilla 11.24 per cent; and in twenty-five cases of sarcoma of the scapula 25 per cent. Recurrence after sarcoma of the humerus occurred in 48 per cent of the cases, of the scapula in 66 per cent, and of the axilla in 68 per cent. Of course, the statistics of mortality are probably more favorable than the actual mortality, as favorable cases are more apt to be reported than those that end fatally.

As giant-cell sarcoma is less malignant than the round-cell variety, the prognosis of the case reported is fairly hopeful.

THE TREATMENT OF PUERPERAL INFECTION.

CRAGIN (*American Journal of Obstetrics and Diseases of Women and Children,* June, 1906) discusses the value of radical pelvic surgery in puerperal infection. As long as a patient is suffering merely from a toxemia with bacteria limited to the cavity of the uterus, hysterectomy is out of place. Furthermore, if the patient is suffering from a general bacteremia with bacteria circulating freely in the blood, and no localization of the process in the uterus or adnexa, removal of the uterus and appendages does not go beyond the disease, and so reduces the patient's power of resistance as to sacrifice the lives of many women who would have recovered if not subjected to surgery.

There are, however, a few cases in which the infection has largely localized itself in the uterine wall, and in which a hysterectomy is indicated as the only means of saving the patient. No one who has removed a uterus studded with abscesses could believe that any other operation would have been successful. These cases, however, are rare, occur late in the puerperium rather than early, and the operation has always a high mortality. In five of these operations performed by the writer the mortality was 60 per cent.

During the latter half of the puerperal month, if a pyosalpinx has developed and is maintaining the temperature its removal is indicated with or without a removal of the uterus, according to the condition of the latter organ, and can often be performed with success. The later in the puerperium this operation is performed, the better the prognosis.

The author has operated upon a number of cases of general suppurative peritonitis, the result of puerperal infection, but has never saved a case. Another phase of puerperal infection is that represented by an infection localized but outside the uterus—a pelvic cellulitis. In one such case, as the temperature continued for a considerable time and the writer could feel a mass at the side of the uterus, not being able to exclude a pyosalpinx, he opened the abdomen. Finding the inflammation extraperitoneal, between the folds of the left broad ligament, he closed the abdomen, expecting to drain later per vaginam if the mass suppurated. Under the treatment of ice-bags over the mass the cellulitis subsided. No suppuration occurred, and no vaginal incision was made.

If pelvic abscesses form, and are near the vagina, the proper treatment is vaginal incision and drainage.

Correspondence.

LONDON LETTER.

BY G. F. STILL, M.D.

Among the interesting events of the past month is the opening of the great Sanatorium for Consumption at Midhurst, in Sussex, which has arisen chiefly through the munificence of Sir Ernest Cassel, and partly through the keen interest taken in its establishment by His Majesty the King, who has allowed it to be called the King Edward VII. Sanatorium, and himself opened it in person on June 13. The Queen also was present at this function, and showed much interest in the institution, which their majesties inspected after the ceremony of opening was completed. The building will accommodate nearly eighty patients, and it was pointed out by the King, in replying to an address by Sir William Broadbent, that the institution was intended chiefly for persons with slender means in professional and other employment, but that a few beds would be reserved for those who could afford to pay for treatment. Several of those concerned in the planning and building of the Sanatorium were presented to the

King, and Dr. Nathan Raw, British member of the International Committee on Tuberculosis, had the honor of being asked for specially by the King, who spoke graciously of Dr. Raw's work in connection with the prevention of tuberculosis. The King has since conferred Membership of the Victorian Order on Dr. Theodore Williams and Dr. Horton-Smith Hartley, who took an active part in organizing the work of the Sanatorium.

Infantile mortality has been the subject of a conference in London this month, under the presidency of the Right Honorable John Burns, M. P., president of the Local Government Board, who made an admirable speech in opening the discussion. He pointed out that in some parts of England 30 to 40 per cent of children died under five years of age, and he considered the factors upon which our grievously high infantile mortality depends. Alcoholism, he said, is a potent cause, and affects both the birth-rate and the death-rate in many ways. It was interesting to note that a slight decline in the infantile death-rate within the past few years corresponded with a fall of twenty-two millions in the nation's drink bill during the last five years. The death-rate from overlying is twice as high on Saturdays as on other days of the week, owing to the expenditure of the week's pay in intoxicating liquors on Saturday night. He prophesied that if the drink bill fell 50 per cent, the infantile mortality would fall 70 per cent. The employment of married women is also an important factor in infantile mortality; no married woman should be allowed to go to work three months before or during the six months after a confinement. There is too much married women's labor, and the outcome of it is the male loafer idling round the beer shop. Ignorance also of the proper way to feed an infant is responsible for many deaths, and in this matter parents must be educated. A striking comparison was drawn between the results of condensed milk and breast milk, showing that to feed an infant on condensed milk is twice as dangerous as feeding it on fresh cow's milk, and to feed an infant on cow's milk is fifty times as dangerous as breast feeding, so that feeding on condensed milk is a hundred times more dangerous than feeding on the breast milk. The right honorable gentleman wound up with a sort of tentative doubt whether there might not be a tendency nowadays to take away from parents the responsibility for their children. Even this mild way of putting it is some satisfaction coming from one of the leaders of the government; but if it is only just dawning on the ministerial mind that there is something wrong in the present-day creed which says to the pauper and the incapable, "Multiply as much as you like, we, the state, will feed, clothe, and educate your children for you," there is but a sorry prospect of ever solving the already almost insoluble problem of the great multitude of the unemployed.

A subject raised by Dr. Nisen, of Manchester, was the establishment of crèches to be maintained at the public expense for the education of teachers and elder scholars in the practical management of infants. Dr. Caton, of Liverpool, thought that children ought to be taught the value of simple foods in contrast with the many harmful artificial foods now used.

One of the annual recurrences in this month is "Hospital Sunday," which has come to be recognized almost as an additional saint's-day; and as usual sermons were preached in almost every place of worship in the country bearing upon this particular subject. A large congregation was gathered at one of the chapels in London, where it had been announced that Sir Frederic Treves would preach. It is not often that a world-famed surgeon occupies the pulpit, and it can well be imagined that an appeal from so well known an authority, especially pointing, as it did, to the enormous amount of pain and suffering relieved by our hospitals, drew a liberal response.

Our French visitors, representatives of various universities in France, have been welcomed with much cordiality by the University of London, and also by the government officials at the Foreign Office. A luncheon at the London University, and various receptions and a conversazione, had been arranged, and several of the most distinguished scientists in London were present to do honor to the French delegates. Scarcely have the French guests left us, when London is again exerting itself to show its friendli-

est hospitality to a representative gathering of German journalists.

A sad accident occurred at University College Hospital last week, when one of the house physicians, the son of Dr. Clement Dukes, of Rugby, was found crushed beneath a lift, apparently having fallen down the shaft beneath the descending lift. The month has also taken from us two distinguished members of our profession—Sir Willoughby Wade, who was consulting physician to the General Hospital in Birmingham, and who contributed to medical literature several interesting papers on treatment, and was at one time professor of clinical medicine of Queen's College, Birmingham, and also Sir Halliday Macartney, who was better known as a military man and a diplomatist in the Chinese service than as a medical authority.

University College was the scene of a significant ceremony this month when Sir Donald Currie, of shipping fame, laid the foundation stone of a block of new buildings which are to include a School of Advanced Medical Studies, as well as a Maternity Student's House. Both King's College and University College, London, have recently entered on a new stage of existence owing to the complete separation of advanced medical from preliminary medical studies; the former are to be identified with the hospital only, and no longer with the college; at the same time the recent outcry against devoting any part of hospital funds to educational purposes has made it desirable to put the advanced medical studies upon a separate financial basis, a thing easier said than done, unless some munificent and enlightened person will come forward, like Sir Donald Currie, with the wherewithal. University College has found its Mæcenas; it is to be hoped that King's College may be as fortunate. But though Sir Donald's munificence entitles him to speak his mind on the maintenance of medical schools—a burning problem at the present time in London—it may be doubted whether he was wise in his hope that parliament would consider the question of making hospitals state-supported. The Bishop of London may have been nearer the mark when, preaching at St. Paul's recently, he said that it would be an evil day when our hospitals ceased to depend on voluntary support.

Notes and Queries.

"UPS AND DOWNS" OF A HEALTH-SEEKER AFTER LEAVING THE ADIRONDACKS.

In the *Journal of the Outdoor Life* for July, 1906, a contributor thus describes his experiences in the search for health. He thinks that some readers will be interested in the subsequent experiences—the ups and downs—of a man who took the open-air treatment for lung trouble at Saranac Lake several years ago. His career since leaving Saranac has, indeed, been varied. It has all terminated happily, though events did not at once assume a roseate complexion when he left the rigors of the Adirondacks for the sunny southland.

On reaching Phœnix, Arizona, five years ago, he immediately took a bad cold and was laid up several weeks with a high fever—around the 103° mark. Then his sister came out from the East and took care of him. For fifteen months he kept almost absolutely quiet, and at the end of that time grew rather tired of the hot weather in Phœnix. That was the last of March, and as the weather was not settled in the mountains at Prescott he went part way up, stopping at Wickenburg, which is a thousand feet higher than Phœnix. The effect was almost magical for a time. His appetite increased and he grew stronger, but in a month it got hot there; then he ran down for a month. His next move was to Prescott, three thousand feet higher. Instead of feeling the exhilaration of high altitudes, of which he had heard so much, he grew as weak as a kitten for a month. Then the weather suddenly got very cool, and he immediately began to improve as he had never before since taking sick. It was then about eighteen months since he had started for the West. He stayed there three months, then with a friend drove down to Phœnix the last of September. They drove fifty miles the first day, forty the next, and forty-five the third, all of it over either rugged mountain roads or hot, dusty desert, and landed in Phœnix without being fatigued.

People told him he was foolish for returning there after doing so well in the mountains, but he kept on improving there the following winter, and after

spending, all told, nearly twenty-eight months in Arizona, he started for Denver. He was again told he was foolish for leaving a country that had helped him so much. He left Phœnix hot and dusty the last of April, and arrived in Colorado with snow on the ground and the air cold. He was fortunately favored with light employment right away with an express company for whom he had worked in New York. They put him on the road between Denver and Lincoln. Although he traveled 2000 miles a week it did not hurt him, and in the fall he resumed office work with fear and trembling.

Contrary to his expectations, he even seemed to enjoy better health indoors than when working out in the air. After nearly a year's work as stenographer with a mining company he went to work in a railroad office where the work was very hard. Besides working all day he was up a great deal nearly every night. Just before he went to California he stopped work and visited with friends in Denver for a couple of weeks. Then he realized how he had been overdoing things, for he was two full weeks in resting.

He reached California early in February in the midst of the rainy season, and although he gained in weight and felt fine he was puzzled by having several night sweats. If he put very little bedding on himself he would not have them. They ceased after a little while, and he is at a loss to know why they occurred, whether it was through fatigue brought on by walking so much to see the sights with heavy rubbers on, or whether his blood was not "thinned" enough and he could not stand much covering on his bed. At any rate, he now sleeps well with plenty over him, for the nights are very cool, eats well, and is five pounds heavier than when in Colorado. He now weighs a little over 140 pounds.

The conclusions he has reached concerning the West, particularly in its relation to the "cure," are nearly all good. If weak hearts are eliminated, one could go West blindly and locate to advantage. But where a sharp distinction has to be drawn, he thinks Arizona perhaps offers the greatest advantages. A person with a weak heart can go there and look for good results. Then, too, it has been his observation that with consumption a lot of other organic complications are likely to ensue. The Adirondacks may be good for some, and so with Colorado, but Arizona is good for about all of them. People can not only find relief from pulmonary trouble there, but also for Bright's disease, liver trouble, rheumatism, and any number of other disorders. His sister was always bothered with liver trouble in the East. She did finely from the time she reached Arizona. His mother suffered agony with tic-douloureux, being laid up for months at a time in bed with it when living in New York. With her the cure was immediate on reaching Arizona. When they reached Colorado it took another form with her—*i.e.,* rheumatism.

But perhaps the greatest advantage that Arizona offers is the great variety of climates. Phœnix is delightful from November to the last of March. One can go up a thousand feet to Wickenburg (fifty miles away), and so on up to Prescott, good accommodations being easily obtained for from $30 a month up to $40. There are little villages every few miles, each say 500 or 1000 feet higher than the one below. These all offer the benefits to be derived from frequent changes. Here the author gives a few profitable "don'ts" for patients going to Phœnix, or Arizona.

Don't stay in Phœnix all summer long, for the season is likely to prove enervating. He advises going up in the mountains, except to those having weak hearts.

Don't locate right in Phœnix at all; if possible go out in the desert. The air and sanitary conditions are much better, and there is an absence of dust.

Don't ride horseback. That kills more pulmonary patients in Phœnix than any imaginary lack of healing virtues in the climate.

Don't get discouraged. The writer, who spent three weeks on his back with hemorrhages after he had been there nine months, thinks he can say this consistently. After he had been there a year he started to run "temperatures" with a most disheartening persistency, but finally got so well that he could give "cards and spades" to many a sound fellow when it came to tests of endurance.

California is an ideal country. It has a splendid climate, mild in winter and generally cool in summer—that is, near the coast.